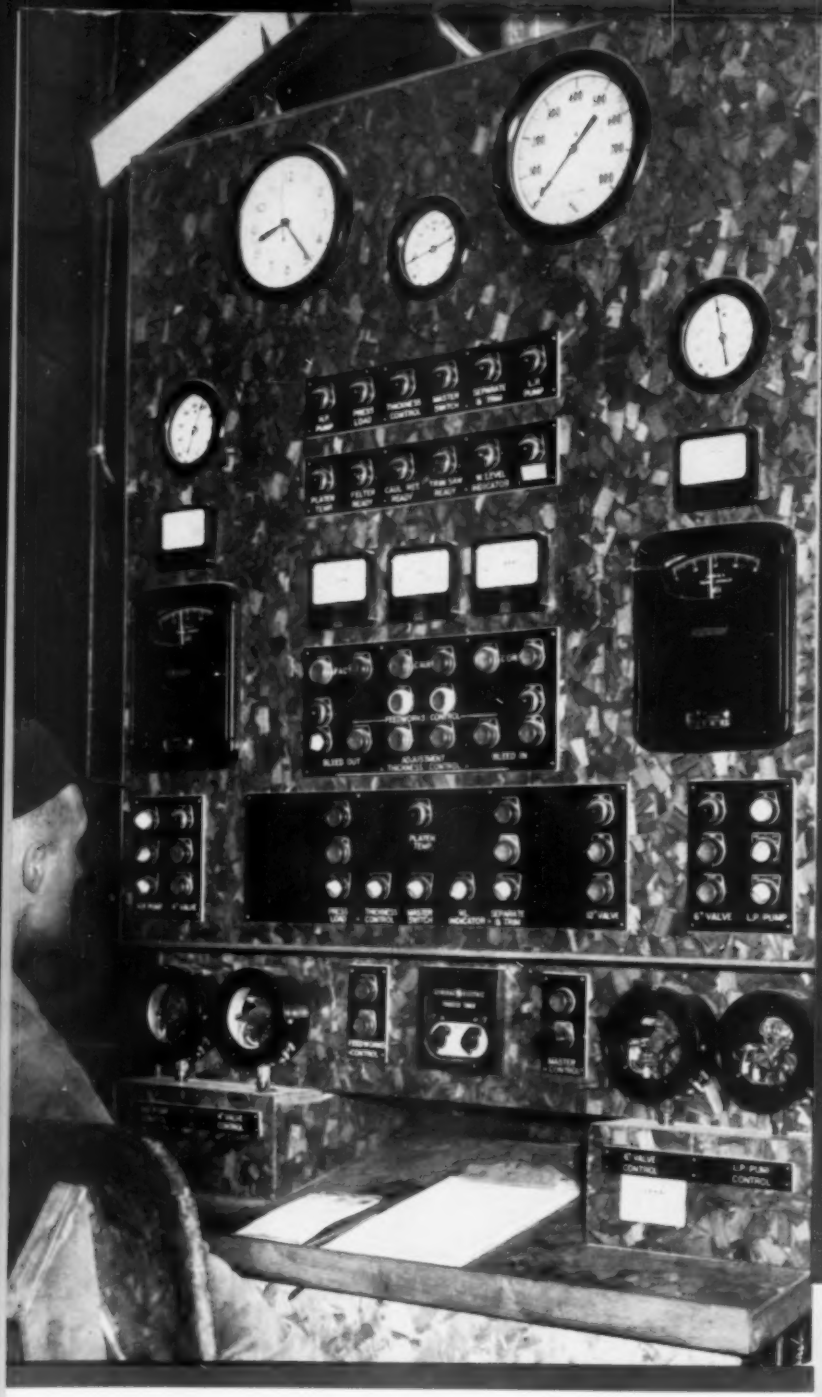


MAY, 1956

WOOD and Wood Products

THE NATIONAL MANAGEMENT AND PRODUCTION MAGAZINE OF THE WOOD INDUSTRY

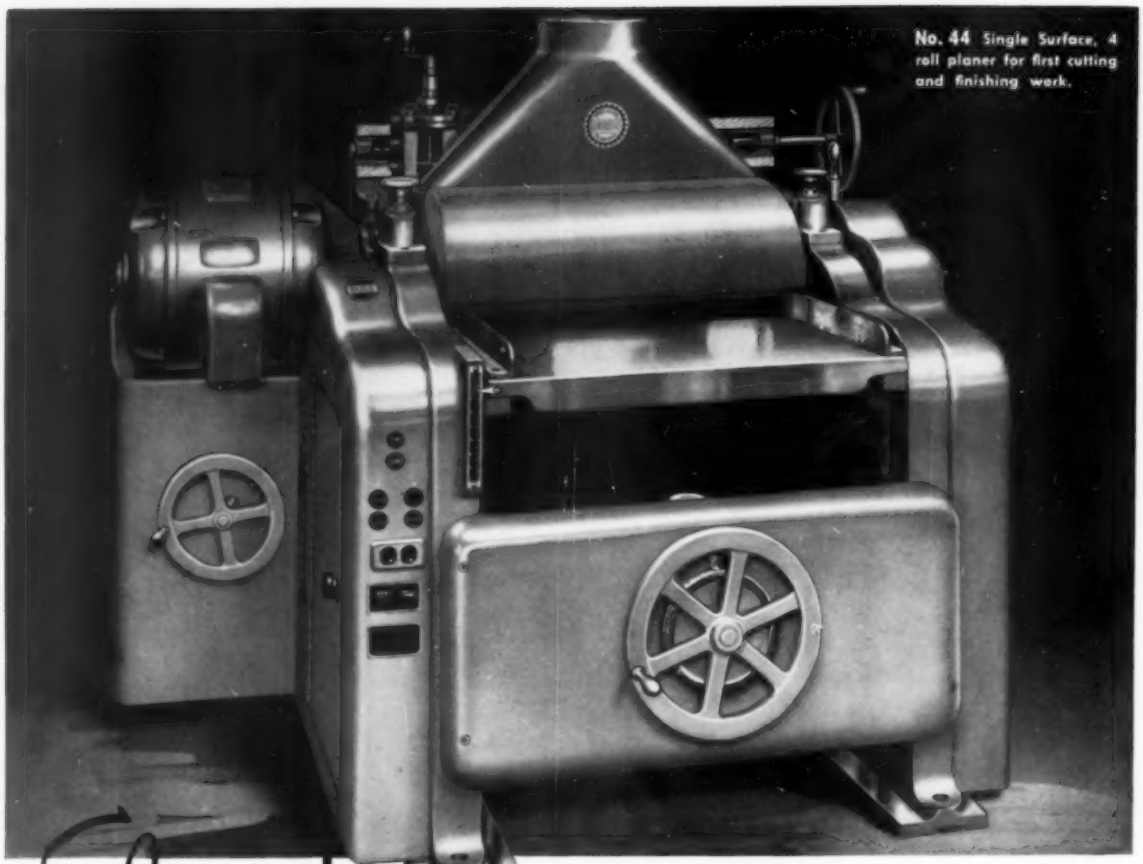
A Vance Publication

FEATURES IN THIS ISSUE

- New Plant Converts Slabs to Waferboard
- Machining Wood to Close Tolerances
- Combine Wood with Hardboard to Make TV Cabinets
- Design Group Ends Container Guesswork
- Production Line—Trends—New Products—Foreign Woods

WOOD SALUTES

R. P. A. Johnson



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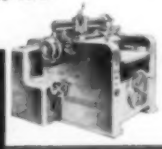

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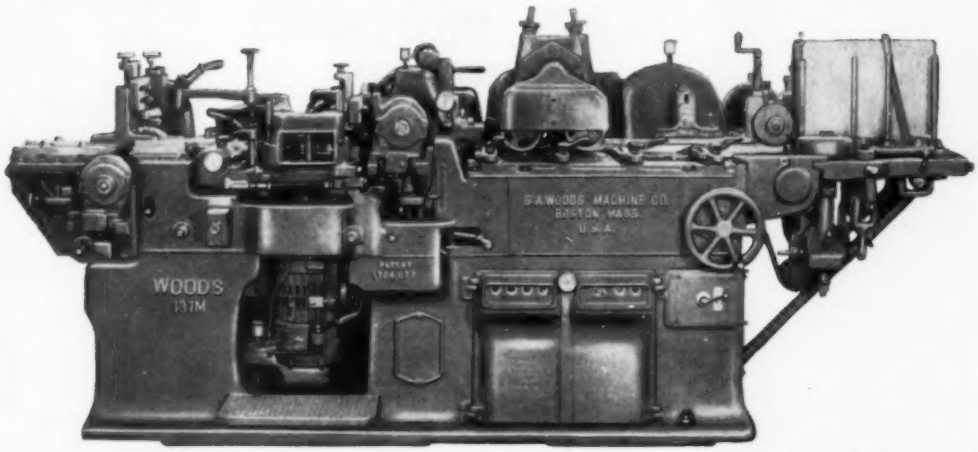

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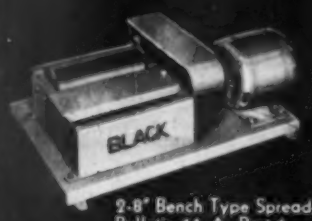

2-8" Bench Type Spreader
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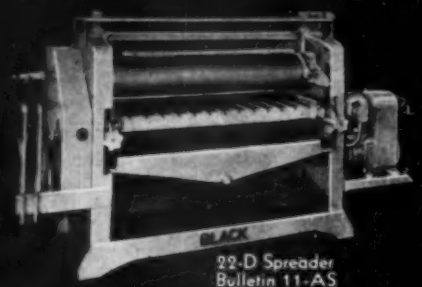

22-D Spreader
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No. 567 Spreader
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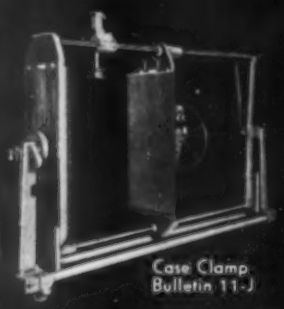
Case Clamp
Bulletin 11-J

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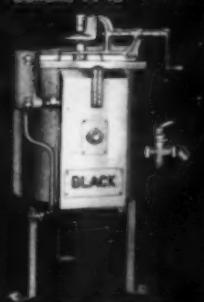
Bulletin 11-M



No. 700 Series Glue Heater
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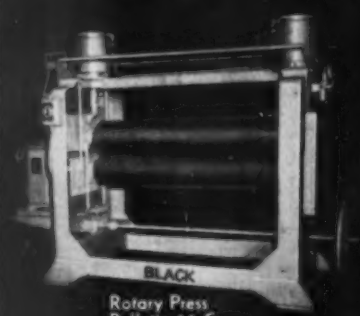

Rotary Press
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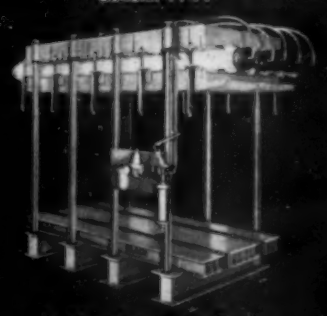
Motorized Laminating Press
Bulletin 11-E


Air Hose Laminating Press
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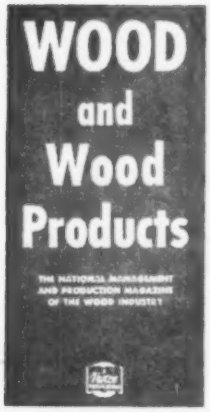

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VOL. 61, NO. 5

WOOD and Wood Products

MAY, 1956

INDUSTRY NEWS . . . . . AND TRENDS

FURNITURE

FURNITURE FIGURES for February are especially significant. Shipments in the current February topped February of all other years by a wide margin—running 27% ahead of February 1955 and 8% ahead of its nearest rival, February 1951. February shipments bettered the previous month's record by 18%, the largest January - to - February increase since 1940. Total shipments made in the first two months of 1956 exceeded those made in the similar period of 1955 by 25%.

Orders booked by the reporting plants were 24% lower than those booked in the market month of January. This is in line with the average January-to-February decline for the past five years. Compared with February last year, this year's orders were up 21%, making a cumulative gain for the two months, over 1955, of 18%.

Notwithstanding heavy shipments, unfilled orders increased 3% in February, new orders exceeding the shipments by 5%. Compared with the end of February 1955, unfilled orders were up 37% and represented more than six weeks' shipments at the current shipping rate.

Outstanding Example of Durability of Good Lumber

SHOP STUDENTS at Coldwater, Ohio, High School recently overhauled the box of a manure spreader and found that after 16 years of farm use the long leaf, clear yellow pine box was in near-perfect condition. The manure spreader was built by New Idea Co., which company introduced the world's first successful mechanical manure spreader more than 50 years ago, and has never used anything but wood for the boxes. They now are sprayed with water-repellent penta preservative and sprayed with hot paint for even longer rot-free life

HARDBOARD

HARDBOARD MANUFACTURERS have begun a 40% two-year expansion of their productive capacity—the biggest increase in the industry's 90-year history.

Masonite has announced it will add about 260 million sq. ft. of annual capacity in the next two years to its Laurel, Miss., and Ukiah, Calif. mills.

Johns-Manville Corp. states it will augment its Natchez, Miss., insulating board operations with 60 million sq. ft. per year of new hardboard production. Johns-Manville has never made hardboard before.

Neither has National Gypsum Co. which has disclosed plans to build a 150 million sq. ft. per year mill later this year at a site not yet announced.

Late in 1955 Bowater Paper Corp., Ltd., Calhoun, Tenn. and Abitibi, Power & Paper Co., Ltd., Alpena, Mich., added 220 million sq. ft. of new hardboard capacity—all of which adds up to an increase from present yearly potential of 1.8 billion sq. ft. of hardboard to around 2.4 billion sq. ft. by 1958.

HARDBOARD PRONOUNCEMENT of Federal Trade Commission that when used in construction of television and radio cabinets, hardboard should not be "represented unqualifiedly as wood" will have little effect upon the use of hardboard in such cabinets, says K. V. Hafner, president, Hardboard Association.

"In effect, all interpretation does is draw hair-splitting distinction between natural wood and hardboard, which technically is a reconstructed wood product," he continues. "The wide use of hardboard in these cabinets will continue because advantages hardboard offers will be the same as before

the trade practice rules became effective Dec. 28, 1955."

"The trade practice rules for the television and radio industry do not affect the furniture industry, although during the radio and television hearings, it was made clear that trade practice rules for the furniture industry are being contemplated."

"Cabinet manufacturers have two alternatives under the new rules," Mr. Hafner says. "In their sales approach, they can either omit mention of cabinet composition or they may make a sales point of the fact that hardboard is one of the major components of the cabinet, point to the advantages of reconstructed wood for the uses to which it is put."

LUMBER

NATIONAL LUMBER PRODUCTION consumption and imports recorded exceptionally high totals during 1955 according to the 99th quarterly reports of the Lumber Survey Committee to the Secretary of Commerce. U. S. Manufacturers produce an estimated 39.1 billion bd. ft. of lumber in 1955, the highest annual total for any of the 27 years for which comparable records have been maintained.

Estimated national consumption of lumber, reflecting exports and imports, as well as changes in distributors' stocks, totaled 43.1 billion bd. ft. for the greatest lumber use since estimates were first made in 1929. U. S. imports of lumber totaling 3.6 billion bd. ft., also set a new record in 1955.

During 1955's fourth quarter, lumber output of 9,431 million bd. ft. was 2% greater than mill shipments and 3% more than new orders received by the mills. Unfilled order files declined 4% while gross mill stocks gained 3% in the final quarter of 1955.

QUARTERLY ESTIMATES of total lumber production, based on regional association reports as prepared by National Lumber Manufacturers association:

	Softwoods (Million	Hardwoods Board Feet)
Fourth Quarter, 1955	7,451	1,980
Third Quarter, 1955	8,378	1,862
Second Quarter, 1955	8,420	1,869
First Quarter, 1955	7,350	1,795
Fourth Quarter, 1954	7,772	1,835
Fourth Quarter, 1955:		
Percent change from Third Quarter, 1955	−11.1%	+6.3%
Percent change from Fourth Quarter, 1954	− 4.1%	+7.9%
Twelve Months, 1955	31,599	7,506
Twelve Months, 1954	29,296	7,417
1955 percent change from 1954	+7.9%	+1.2%

QUARTERLY ESTIMATES of total lumber shipments as prepared by National Lumber Manufacturers association:

	Softwoods (Million	Hardwoods Board Feet)
Fourth Quarter, 1955	7,071	2,143
Third Quarter, 1955	8,322	2,056
Second Quarter, 1955	8,676	2,063
First Quarter, 1955	7,365	1,909
Fourth Quarter, 1954	7,652	1,822
Fourth Quarter, 1955:		
Percent change from Third Quarter, 1955	−15.0%	+ 4.2%
Percent change from Fourth Quarter, 1954	− 7.6%	+17.6%
Twelve Months, 1955	31,134	8,171
Twelve Months, 1954	29,811	6,701
1955 percent change from 1954	+ 5.4%	+21.9%

FLOORING SHIPMENTS by regions for the fourth quarter, 1955, the totals for 12 months of 1955 and percent change from 1954 were:

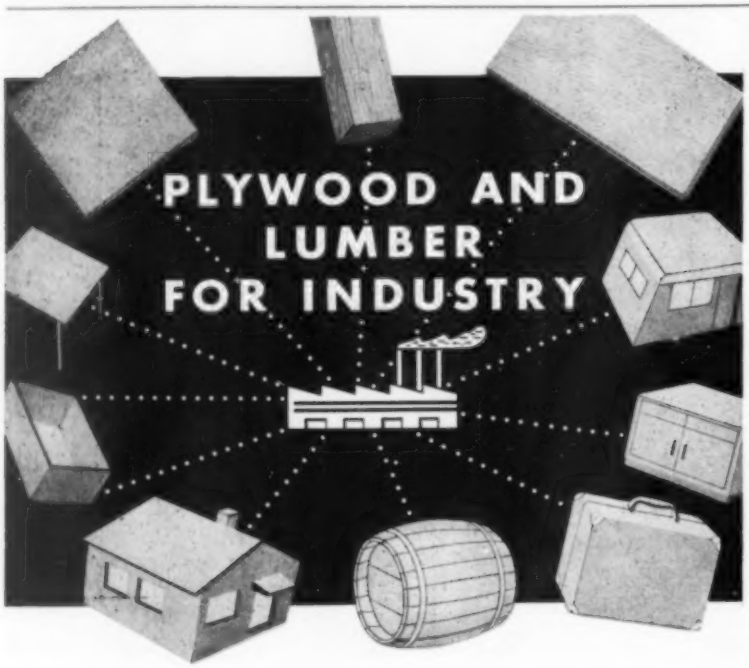
Oak Flooring Region

	4th Qtr. 1955 M Bd. Ft.	12 Months 1955 M Bd. Ft.	% Change from 12 Months 1954
Production	298,052	1,220,204	+11.4%
Shipments	278,465	1,207,164	+10.7%
New Orders	238,376	1,188,781	+ 8.5%
Unfilled Orders (End of Period)	61,168	.....	.....
Gross Stocks (End of Period)	62,545	.....	.....

Maple Flooring Region

Production	11,875	47,900	− 4.1%
Shipments	11,925	51,750	+ 5.8%
New Orders	11,600	55,800	+ 5.6%
Unfilled Orders (End of Period)	12,000	.....	.....
Gross Stocks (End of Period)	7,500	.....	.....

LUMBER PRODUCTION the first six weeks of 1956, according to the National Lumber Trade Barometer, has been 8% below the corresponding period of 1955. Shipments so far in 1956 have been approximately the same as production, while new orders have been 5% above the output.



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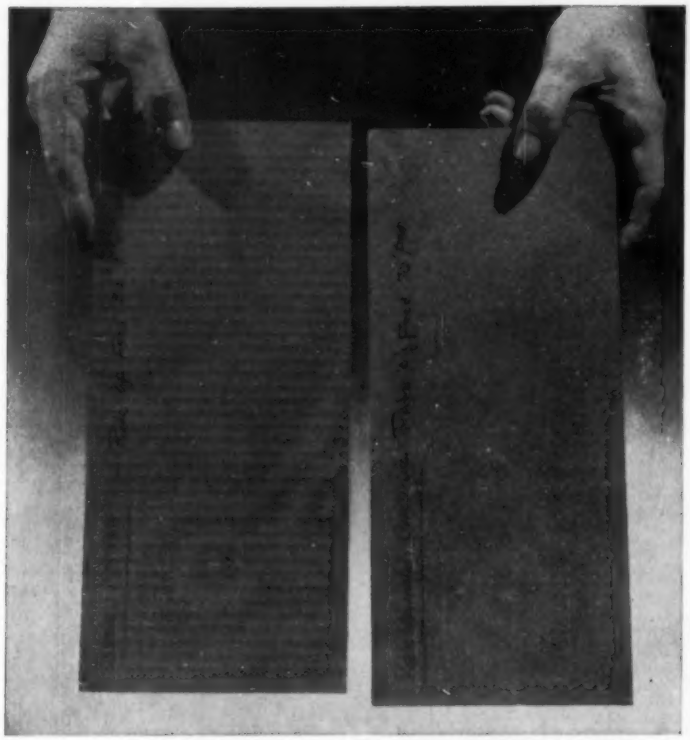


Finish with jointed steel knives

Finish with jointed Kennametal knives

Fifty-inch, solid KENNAMETAL* planer knives

★ Increase production 100%
★ Reduce maintenance costs
★ Eliminate "washboard" finish
★ Improve dimensional accuracy

Switching to 50-inch Kennametal carbide planer knives increased production and improved finish of both high-density and low-density hardboards.

Output of *steel* knives, in two working shifts or 16 hours per day, totaled 80,000 sq. ft. of hardboard. After almost every 3 hours, jointing was necessary and at the end of 16 hours of normal operation, the knives had to be completely reground. Maintenance required approximately 5 hours for each 16 hours of operation. In addition, it was difficult to maintain required finish and dimension because of the tendency of the steel knives and head to deflect, causing excessive "washboarding."

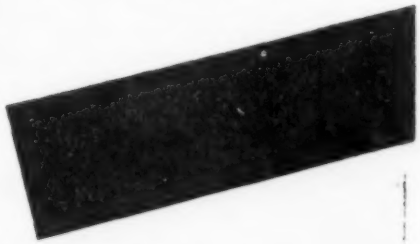
KENNAMETAL PERFORMANCE. Output with Kennametal knives, working two shifts or 16 hours, totaled 162,000 sq. ft. of hardboard. No jointing or grinding of these carbide knives was needed, thus requiring no machine downtime. After 14 eight-hour shifts of normal operation, Kennametal knives showed no evidence of wear. The rigidity of the solid Kennametal knives resists deflection; therefore, the board dimension is uniform and the finish is improved.

Why not try Kennametal knives in your operations? If you cannot get engineering service or carbide maintenance information from your present supplier, write to KENNAMETAL INC., Latrobe, Pa.

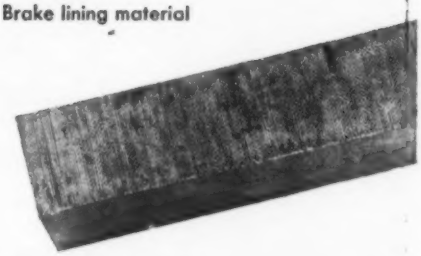
*Registered trademark

These synthetics successfully planed with solid KENNAMETAL Knives

(Planing of these products with steel knives impractical)



Brake lining material



Phenolic fiber product

Hard rubber composition

Wood particle board

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PLANER KNIVES • ROUTER BIT BLANKS

INDUSTRY AND
KENNAMETAL
...Partners in Progress

WESTERN PINE production for the first quarter, 1956, of 1,684 million ft. was up 2.6% from last year. Shipments of 1,824 million ft. were 1.6% above 1955's record first quarter.

Second quarter shipments are expected to be reduced to some extent because a number of log decks that would have been saved ordinarily for the spring breakup period had to be cut during the winter. Snow in the mountains of most of the region is unusually deep—a difficult breakup period with floods in some areas is anticipated. Consequently second quarter, 1956, shipments of lumber from the western pine region will approximate 2,275 million ft., or about 2% under record shipments of the same 1955 period.

CONSTRUCTION

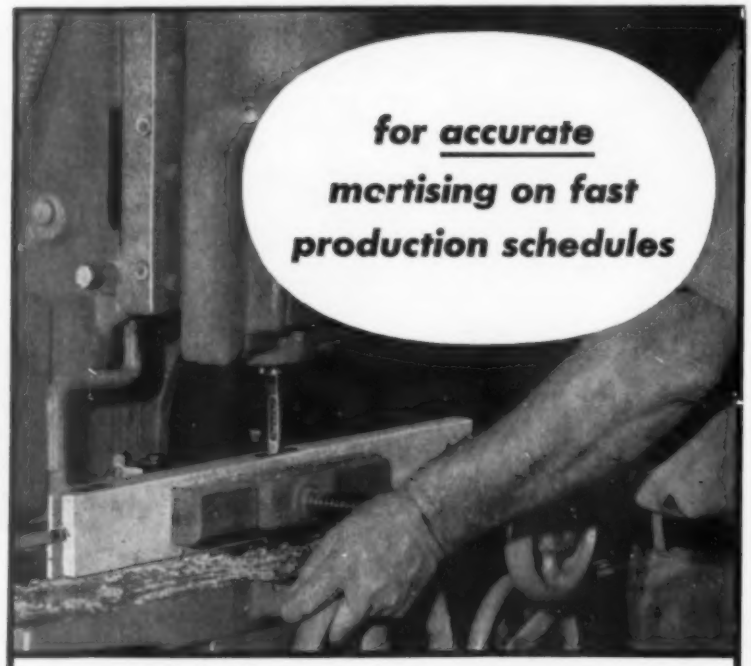
NEW CONSTRUCTION put in place during the first quarter was about the same as last year. Nevertheless, several of the major types showed significant increases. Decreases in this year's private residental building, down 5%, and public industrial construction down 61%, were offset by increases in commercial building, up 21%, highway work up 8%, and public service enterprises, up 105%.

BUILDING ACTIVITY in March rose to Nearly $3 billion according to the Departments of Commerce and Labor.

March construction level was 10% above February and equaled the previous March record set last year. For the first three months of this year, construction put in place amounted to $8.5 billion—just about the same as last year.

Residential building rose a seasonal 12% to $1.1 billion in March, although this was 6% below March 1955. Nevertheless, it exceeded the March volume for all other years.

Other noteworthy March figures in the report: Private non-residential building set a new March record at $685 million; industrial construction continued high at $226 million; public construction outlays totaled $789 million.



get GREENLEE Hollow Chisels and Bits

Fast-clearing, long-lived GREENLEE Hollow Chisels and Bits add speed and accuracy to the production and assembly of your products. Made by the originators of the hollow chisel mortiser, these high-quality tools make "clean" mortises easily, swiftly, economically.

Available in a *complete* line for hard or soft wood and all makes of machines. Write today for new illustrated Catalog 34-M describing these and other GREENLEE tools for mortising, boring, and routing.

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GREENLEE TOOL CO., Div. of Greenlee Bros. & Co., 2155 Herbert Ave., Rockford, Ill.

Tools for boring, routing and mortising • Hollow Chisel Sharpeners • And many others
Mfrs. of Teco Grooving Tools for Timber Connectors • GREENLEE Woodworking Machines include Tenoners • Saws • Mortisers • Borers • Planers • Shapers

WOODEN CONTAINERS

MORE WIREBOUND BOXES and crates were used for shipping industrial products and fresh and frozen foods in 1955 than in any previous year. Unit sales for the year totaled 194,986,265 boxes and crates and the dollar volume for the industry was $112,162,973, also a new high record.

The number of wirebound shipping containers used during the year for industrial products, ranging from fragile and delicate instruments to large and heavy machinery, increased 5.2% over the previous record year. The number used to ship fresh fruits and vegetables increased 3.4%.

COMING EVENTS

May 2-3: Annual spring meeting, Midwest Section, F.P.R.S., Dubuque, Iowa.

May 3-4: 8th annual meeting, Western Dry Kiln Clubs, Claremont Hotel, Berkeley, Calif.

May 7-8: Pacific Northwest Section, Forest Products Research Society, Eugene, Ore.

May 15-18: Annual Convention, National Plywood Distributors Assn., Colorado Springs, Colo.

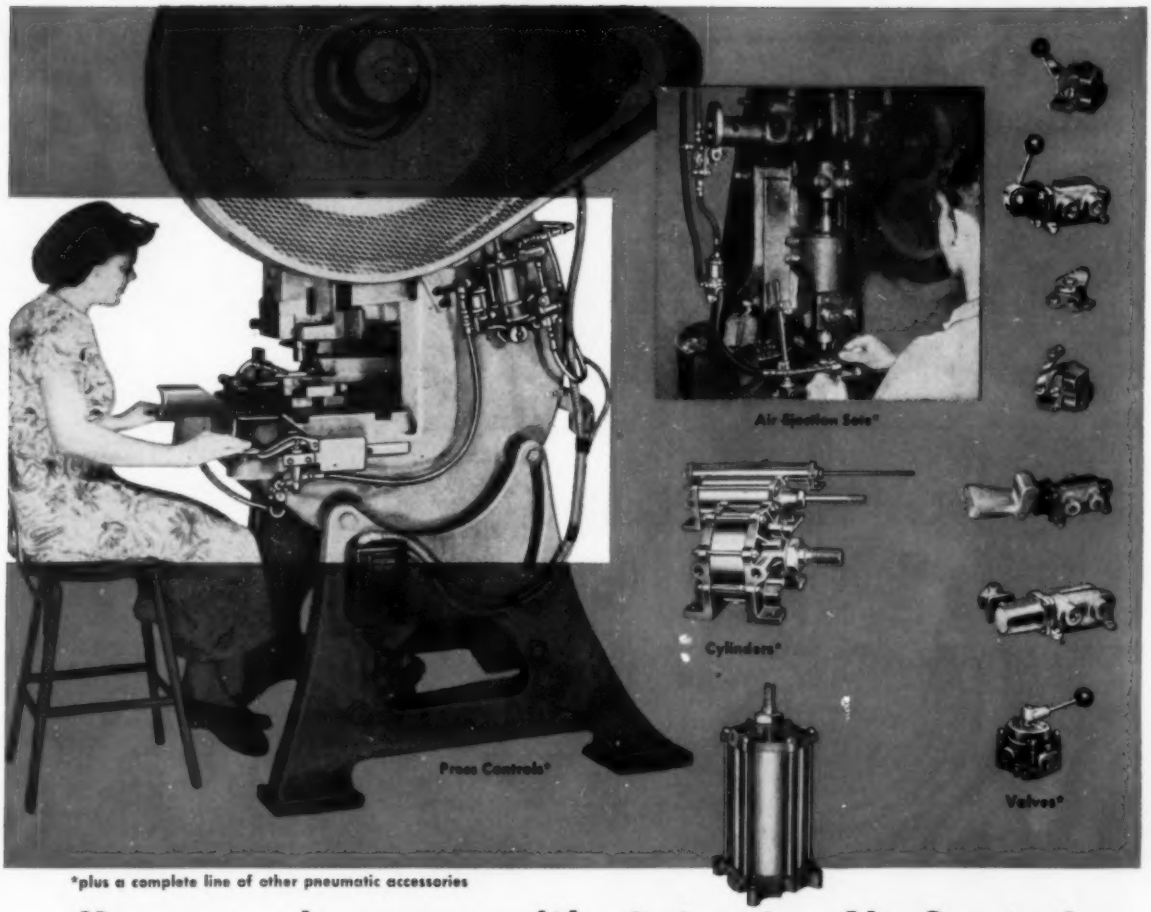
May 20-22: Fifth annual meeting, Building Research Institute, Sheraton-Brock Hotel, Niagara Falls, Ont., Canada.

June 4-7: 10th annual meeting, F.P.R.S., Asheville, N. C.

June 15-28: Grand Rapids Summer Furniture Market.

July 16-20: Summer market, Western Merchandise Mart, San Francisco.

Aug. 26-30: 28th annual convention, and Supply, Equipment & Fabric Fair, National Association of Furniture Manufacturers, Conrad Hilton Hotel, Chicago.



*plus a complete line of other pneumatic accessories

Harness air power with Schrader Air Control

On many machines, Schrader Control Sets will actually double your production by replacing tedious, time-wasting manual operations with swift, safe, sure movement by air. In other locations, Schrader Valves, Cylinders and other Air Line Accessories lift... lower... pull... push... clamp... clean off. They do many things so easily and quickly that you'll find it hard to believe you did without them before.

Take a look around your plant—keeping in mind where air power could do the job better. Then let us help you develop your ideas into neat, efficient air line hookups that will pay for themselves over and over again the first year. For specific information, write —or, if you prefer, fill out the convenient coupon below.

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LEADERS IN AIR CONTROL SINCE 1844

The complete Schrader line of pneumatic accessories includes everything you need

A. SCHRADER'S SON, Div. of Scovill Manufacturing Co., Inc.
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Brooklyn, New York

I am interested in more information on_____

Name_____ Title_____

Company_____

Address_____

FOREIGN WOODS

By George N. Lamb

MERANTI

Shorea spp.
Dipterocarpaceae (Dipterocarp) Family

The dipterocarp family, in the matter of timber production, is the most important of all in the Indo-Malayan, Borneo and Philippine regions. In the United States the Philippine dipterocarps are by far the best known. This is particularly true of the group of species sold in this country as so-called "Philippine Mahogany." This name has been controversial in the Federal Trade Commission and the courts for about 30 years and is still pending before the Commission.

The fact that timbers of this family are the principal forest resources of Malaya is less well-known. However, in the last several years we have received imports from both Malaya and North Borneo.

There are many dipterocarp species, both in Malaya and North Borneo, but we will confine ourselves to those that produce the principal commercial timbers. For these, mostly the name Meranti is used. There are four different types, dark red, red, white and yellow Meranti. The dark red is very similar to the tanguile of the Philippines and is the most desirable. It is derived principally from Shorea pauciflora. The wood has a specific gravity of 0.55 to 0.63.

Red Meranti includes a number of species of Shorea that produce a pale pink to light reddish brown comparatively soft timber of average weight. Specific gravity about 0.50.

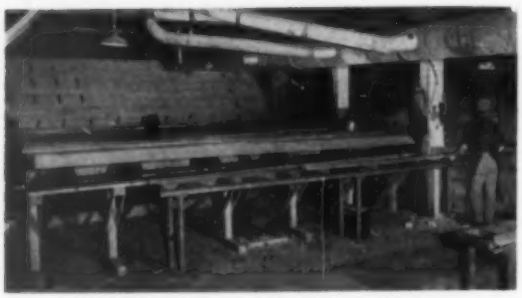
White Meranti covers another group of species of Shorea. The timber is almost white when freshly sawn but becomes yellow or buff colored when exposed. It ranges from soft to moderately hard and heavy. Specific gravity 0.50 to 0.77. This type is usually found in mixed light hardwood shipments and is not suitable for export.

Yellow Meranti is a moderately hard and moderately heavy timber from still another group of species of Shorea. Specific gravity 0.45 to 0.60. The heartwood is pale yellow to yellowish brown. This wood is very subject to fungus and insect attack. It shows up in light mixed hardwood shipments and is to be avoided as an export item.

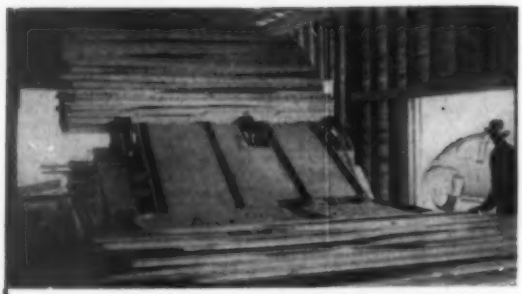
In North Borneo and Sarawak, Red Selangan (Shorea sp.) produces timber that has characteristics intermediate between those of dark red Meranti and red Meranti. Other groups of dipterocarps in Borneo fall into classifications similar to white and yellow Meranti. Texture of all these woods mentioned ranges from medium to mostly coarse. As possible imports into the United States only dark red Meranti and red Selangan have the best chance of acceptance.

Other names: Both in Malaya and Borneo the native names of the various dipterocarps are many and confusing. Furthermore the family is still imperfectly known to botanists, so reclassification or confirmation of botanical relations are still going on.

Get *Low-Cost* Package Unstacking With The Moore Breakdown Hoist



One man operates this Moore Breakdown Hoist, handling stickered loads and feeding cut-off saw. At Remington-Rand, Inc., Herkimer, N. Y.



Moore Hoist Unstacker handling large truckload-size packages, feeding sorting chains. At David M. Lea & Co., Richmond, Va.

Take the first step NOW to place your lumber handling operations on a more profitable footing with a Moore Stacker-Unstacker System. Write today—no obligation.

MOORE DRY KILN COMPANY

Oldest and Largest Manufacturers of Dry Kilns and Veneer Dryers

JACKSONVILLE, FLORIDA · BRAMPTON, ONT., CANADA · VANCOUVER, B. C., CANADA · NORTH PORTLAND, OREGON

WOOD PUZZLERS

This department is designed to help find answers to your production and sales problems. Let us know what information you need. Other readers may be able to help you.—*The Editors.*

197—Hard Rock Maple Squares

Would some of your readers be interested in giving me quotations on carloads of 1¼ in. and 1⅜ in. white hard rock maple squares? (N.Y.)

TWO NEW SKIL SUPER-DUTY SAW VALUES

Offer Finest Performance, Easiest Handling In Woodworking!

Increased power and speed—plus lighter weight—make SKIL Model 77 and 825 the cutting champions! Now these famous saws offer *brand-new* advantages for even greater smoothness, stamina, safety and handling ease. Here's unmatched cutting performance for every woodworking job!

BIG SKIL INTRODUCTORY OFFER

$22.50 TRADE-IN ON YOUR OLD SAW!

—regardless of make, age or condition when you purchase SKIL Model 77 or 825!

SKIL Model 77 (7¼" Blade—Super-Duty)—Brand-new features mean smoother performance, easier handling, longer life. Speed increased to 4500 r.p.m. and weight cut to 15½ lbs. Power output boosted 100%. Depth of cut 2⅛"—bevel-cuts 2" dressed lumber at 45°. Easily cuts masonite, plywoods, and metals.

Price, Model 77 (less case)	**$115.00**
Trade-in Credit	**22.50**
YOUR COST, ONLY	**$ 92.50**

SKIL Model 825 (8¼" Blade—Super-Duty)—Outstanding new features! Speed boosted to 4000 r.p.m. and weight reduced to 16½ lbs. Power increased 107%. Depth of cut 2⅛". Bevel-cuts 2" rough lumber at 45°. Powered to cut 2" rough lumber easily. Also many other tough, resistant materials.

Price, Model 825 (less case)	**$135.00**
Trade-in Credit	**22.50**
YOUR COST, ONLY	**$112.50**

Look At These Brand-New SKIL Features!

- **New Contour Handle** for comfort and greater control!
- **New Variable Torque Clutch** eliminates kickback! Foolproof, dependable.
- **New, Improved Gearing** for longer service, quieter operation!
- **Heat-treated Aluminum Foot**—40% stronger!

SKIL Introductory Trade-in Offer Good At All Authorized SKIL Distributors. Call the One Nearest You Today!

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PORTABLE TOOLS

Made only by SKIL Corporation, formerly SKILSAW, Inc.
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LETTERS to the EDITOR

Excelsior Waste Uses

Editor: We have a problem and would appreciate any help or information you could give us. Our problem is waste, consisting of short pieces of excelsior. This waste is considerable and we feel there should be a way to utilize it to our advantage.

—E. B. Humes
Bedford Excelsior Co., Inc.
Bedford, Ind.

Knife Mark Problem

Editor: Could you help us with this woodworking problem? Wood being surfaced on our planer, jointer, or moulder receives pit marks. As near as we can figure, these marks are caused by chips which cling to the knife and are dragged through the wood by the heel of the knife. We will appreciate any information or reference you can give.

—L. A. Johnson
Johnson Products Co.
Milwaukee, Wis.

Help for Lumber Producer

Editor: We would greatly appreciate receiving the following: (1) Source of further information on concrete board, and wooden building brick from sawmill leftovers, as mentioned in your February issue, (2) reprints of "Sawmill Automation" and "How to Get Top Yield from Rough Lumber," and (3) names and addresses of the manufacturers of small, short log, bolter-type sawmills which are used in the East for sawing short hardwood logs as dimension stock.

—Guy Bennett Lumber Co.
Moscow, Idaho

Incentives

Editor: In your November issue, we noted that the article, "How Incentives Increase Production, Quality, Profits," was by Mr. McNew. We would like you to send us, if possible, some copies of Mr. McNew's paper.

—J. H. Stempel, Prod. Mgr.
Stempel Mfg. Co.
Dallas, Texas

Production, Estimating Articles

Editor: I would appreciate one copy of the following articles: "Meet School Furniture Demand with Assembly Line Production," by R. A. McKay, in your November 1955 issue, and "More Accurate Estimates of Wood Products Prices," by V. E. Noltemeyer, in your October 1955 issue.

I certainly enjoy the factual and diversified articles which appear in your magazine. I will thank you in advance for your attention to my request.

—W. Williams
Borden Co., Chemical Div.
Seattle, Wash.

Seeks Special Mouldings

Editor: Please send us names of firms which manufacture carved and embossed wood mouldings. Thank you.

—Marvin Veal Displays
Birmingham, Ala.

Stanford, Noltemeyer Reprints

Editor: We would be pleased to receive reprints of the Stanford Research Report and Mr. Noltemeyer's article, "How to Get Top Yield from Rough Lumber," as offered in your February issue.

—F. H. Riedel
Wood Conversion Co.
Cloquet, Minn.

WANT THESE REPRINTS?

For readers who are interested in the specific subjects covered, we offer the following reprints free (quantities at nominal cost). Requests on business stationery will be given first preference. Please be selective, as these subjects are not necessarily related.

—The Editors

Stanford Research Report — on future demand for forest products

"How to Get Top Yield From Rough Lumber" by V. E. Noltemeyer

"Sawmill Automation" by Milton H. Mater

Wood & Wood Products
139 N. Clark St. Chicago 2, Ill.

NEWMAN P-624
MOTORIZED BALL BEARING TENONER

Designed for
YOUR PROFIT

Ground and polished steel bars for rails assuring permanent alignment with heads.

Ball bearing carriage.

One piece cast iron base with cored-out compartment for electrical controls.

Tilting tenon heads with lateral and vertical adjustment for all heads.

Round type tenon heads will cut 3¾" long at one operation or 7" long with two passes.

Deductions allowable if all heads not needed.

Tilting table can be furnished at additional cost.

Delivery from stock subject to prior sale.

Write for descriptive literature and full quotation.

Price **$2,595.00** with 2 H. P. tenon and cut off motors, 1 H. P. cope motors. This unusually low price is an introductory offer for a limited time only. F. O. B. Greensboro, N. C.

NEWMAN MACHINE CO., INC. GREENSBORO, N.C.

For the finest surfacing of Planer, Veneer and Hog Knives you've ever known...

NEW

SWITCH TO V40 SEGMENTS

A REVOLUTIONARY NEW CONCEPT in grinding... V40 Segments make all other abrasive segments obsolete... thanks to:

- a radically different manufacturing process
- a remarkable new vitrified bond

ONLY V40 SEGMENTS GIVE YOU

- Highest abrasive content
- Fastest stock removal...with lightest infeeds
- Coolest cutting...on any application
- Most exact uniformity...end to end
- Longest life of any segments
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TEST THEM AND SEE!

There's only *one way* to convince you that V40 Segments are the finest you can use...a test in your own shop, on your own machines. Your Carborundum Distributor or salesman is anxious to arrange a test at your earliest covenience. Call him today...or write The Carborundum Company, Dept. WF 81-014, Niagara Falls, N. Y.

TEST THEM...then **SWITCH TO V40 SEGMENTS**

by **CARBORUNDUM**

REGISTERED TRADE MARK

ALONG THE PRODUCTION LINE

CRUTCH ASSEMBLY operations: bottom split reinforcement and handle riveting at high speed hammer riveting machine and top pinning at the automatic nailing machine

Crutch Assembly Operations

The most popular crutch model produced is the split crutch made from a single stick blank split to support the top or arm rest and to carry the handle or hand hold. Crutch manufacturers have adopted modern manufacturing methods and automatic machinery to speed up production. Typical applications are found in the assembly operations, as shown.

A bottom split rivet is first inserted as reinforcement to prevent splitting beyond the original split cut and is riveted on an automatic high speed riveting machine. Handle wires, essentially long truss head rivets, are then inserted. Handles are mounted over them between the split upright ends and are riveted on. After the tops have been glued and driven on to the top tenons of the upright ends, they are pinned on a nailing machine which automatically forms the pins to the desired length and drives them through the top and tenoned crutch ends.

Undertaker's Bend for Round Corners

AN OLD CABINET makers' method of bending panels for round corners was called the undertaker's bend, due to its common use in casket bentwork. It is essentially bending by kerfing, cutting a series of saw cuts across a panel opposite the surface to be exposed and spacing the cuts to produce the required bend. Depth of cut is limited by wood thickness and strength requirements. A rule of thumb used in application specified, "The deeper the kerf the wider the spacing and the greater will be the bend." This method allows lengthwise as well as widthwise kerfing and lengthwise kerfing was used for many waterfall case goods bends when this design was first manufactured. The bend was usually set by application and curing of glue in the kerfs after the panel had been bent.

Chair Assembly Without Hammers

A PLANT manufacturing short post chairs for dinette sets uses an air-operated press which permits chair assembly without hammers. Bases or leg and stretcher assemblies are first pressed in a four-way pneumatic press with the chucked

"... WISE CHOICE," SAYS MANUFACTURER —

Typical DIXIE low-pressure fan and collector. This 10'-9" diameter fan moves 54,000 cubic feet of air per minute, keeps plant air clean and healthful.

A DIXIE Engineer will gladly discuss your dust problem, without obligation. A note on your letterhead will get prompt action.

Recently completed dust collecting system by DIXIE brought this comment from Mr. D. H. Kreider, president of W. L. Kreider's Sons Mfg. Co., Inc., Palmyra, Penna.

Today your engineer took me on a personal tour of our plant to show me the installation of the new dust collecting system. The system seems to be operating very efficiently and, to the best of our knowledge, the installation has been completed and is satisfactory.

Your engineers did an excellent job and were cooperative at all times. We feel certain we made a wise choice when we decided to have you people install the new dust collecting system for us and we certainly hope we will never have any trouble with the system as it seems very complete and very well installed.

DIXIE

MANUFACTURING CO., INC.

1514 W. Patapsco Ave., Baltimore 30, Md.

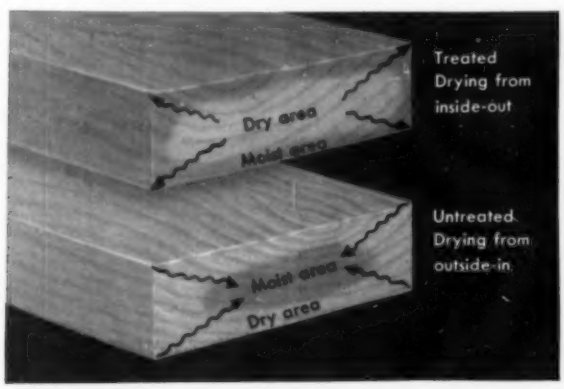
Tell our advertisers you saw it in WOOD *and* WOOD PRODUCTS

Manufacturers find it pays to use Morton Lumber Cure treated lumber

The Tell City Chair Company, chairmakers since 1865, and makers of the rocker shown at right, started using Morton Lumber Cure treated lumber two seasons ago. The results have been most rewarding. Tell City has found Morton Lumber Cure reduces drying time about one-third, increases cutting yield, and produces check-free lumber.

Hundreds of fabricators now insist on lumber that has been treated with Morton Lumber Cure. They know from experience Morton Lumber Cure increases utilization of rough cut lumber. Lumber also can be dried faster; kiln time and expense can be reduced, with a more rapid turnover of inventory and capital.

What's more, Morton Lumber Cure is compatible with stain-preventing agents . . . will not affect gluability . . . machinability . . . color or finish. Morton Lumber Cure is non-toxic and non-corrosive.



HOW MORTON LUMBER CURE WORKS Morton Lumber Cure reverses the normal drying action. Untreated lumber dries from the outside in. Morton Lumber Cure dries lumber from the *inside out*. This controlled drying greatly reduces checks, honeycomb, warping, and other types of wasteful surface and interior degrade.

SEND FOR MORE INFORMATION TODAY!

Bay Chemical Company

DIVISION

Morton Salt Company

120 So. La Salle Street, Dept. WWP-5, Chicago 3, Ill.

Please tell me how Morton Lumber Cured lumber can save *me* money; and what suppliers in my area have this kind of lumber.

Name_____

Title_____

Company_____

Address_____

City_____ State_____

Our plants are located at_____

AIR-OPERATED assembly press produces from 50 to 60 chairs per hour

or round tenoned ends aligned by adjustable jigs to match the seat holes of the chair top assemblies.

The top is inverted over a base in the chair assembly press, which is shaped to receive the seat and is well padded to prevent damage to it. With glue applied to the seat holes, the base assembly is applied over the seat so that the chucked or round tenon ends of the legs can be inserted. In this position the opposite ends of the legs make contact with the serrated surface of the top clamp plate of the press. Pressure is applied by foot lever to bring the top plate down upon the legs and provide sufficient pressure to press the round tenons into the seat. Average production at this press is said to be from 50 to 60 chairs per hour.

Producing Molded Plywood Electronically

THE SUPERINTENDENT of a Canadian plant, producing molded plywood by electronic bonding, warns that where molded plywood is to be bonded electronically, the size, thickness and number of glue lines of the plywood laid up in each mold or die of any station of a multiple press must be the same for equalized curing of the glue lines. Reason? The flow of high frequency through the field of the curing station is always constant.

Lift Truck Conversion

A PREFABRICATED HOMES manufacturer uses a converted truck for loading and unloading prefabricated house units and to handle lumber at the plant. This was made possible by the use of a commercial lumber hoister unit mounted to a truck formerly used to carry lumber in from sawmills in the area. The hoister is operated by the truck driver and is mechanically controlled by a power take-off, winch and cable and screw. Travel of the forks is said to be up to a height of 10 ft. 6 in. and tilt forward 35° or backward 10° with screw movement. The truck on which the hoister is mounted is a 2-ton truck with a 2-speed rear end. The forks are 8 ft. long and are adjustable to 69-in. width.

This hoister handles one-half truckload of prefab units or about 1700 ft. of lumber at one time. Used solely for stacking lumber, it was reported that as much as 50,000 bd. ft. of lumber was handled in a single day. Control is

Foundation for your Finest Quality . . .

DELUXE LEGS by *Victor*

Carefully turned of the finest kiln dried hardwoods, 2¼" top diameter. Sanded satin smooth and beautifully finished in your choice of Black Crinkle, Walnut, Mahogany, Maple, Blonde, Natural or Ebony. (Motex finishes in black, mahogany, and walnut 4c less per leg.) Ferrules are solid, satin finished brass with closed bottoms. 5/16" Hanger bolts attached.

Conical style with glide instead of ferrule

7504 PC

Length	2½"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"
100 to 1000	.23	.24	.26	.28	.30	.32	.34	.36	.38	.40	.42
1000 or more	.21	.22	.24	.26	.28	.30	.32	.34	.36	.38	.40

7504 BF

Length	With ¾" Ferrule 2½"	3"	4"	With 2" Ferrule 5"	6"	7"	8"	9"	10"	11"	12"
100 to 1000	.40	.41	.43	.50	.52	.54	.57	.59	.61	.63	.66
1000	.38	.39	.41	.48	.50	.52	.55	.57	.59	.61	.64
5000	.36	.37	.39	.46	.48	.50	.53	.55	.57	.59	.62
10,000	.35	.36	.38	.45	.47	.49	.52	.54	.56	.58	.61

Clinch Nut Plates #7 Sq., Flat 4c ea. #20 Tri., Flat 6c ea. #15 Tri., 15° 6c ea. #7A Sq. 10° 5c ea. #10 Tri., 10° 6c ea.

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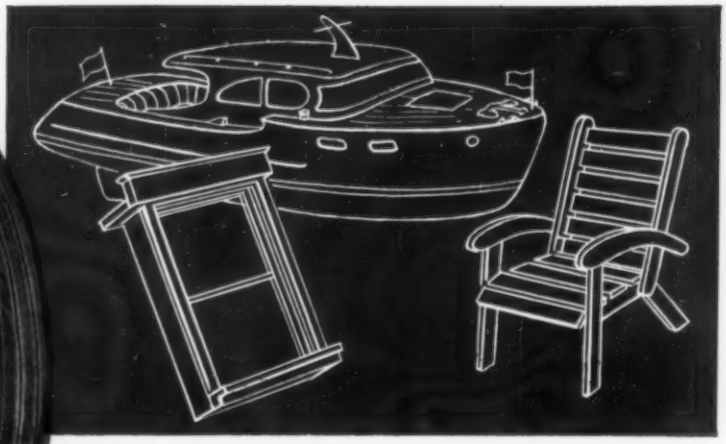
Victor WOOD PRODUCTS COMPANY
1514 Wealthy, S.E., Grand Rapids 6, Michigan
Phone GLendale 4-8224 "We lead, others follow"



Q WHAT'S the right glue for treated woods?

A *specialized* Borden adhesive

To combine economy, efficiency and longer service life, both plywood and laminated structures are being used more and more widely in combination with preservative treatments.

But choosing the glue that suits the application, type of preservative, and method of assembly requires careful consideration and know-how. For example, some types of adhesives break down under high temperatures involved in the pressure treating system.

Will you be treating for protection against fungi? Or insects? Or fire? Or a combination of all three? Will you use a non-pressure dip or soak? Or a vacuum-pressure treatment? What is the intended durability of construction? All of these factors, and more, have a bearing on the selection of the adhesive.

Borden can deliver the exact adhesive you need for bonding any treated wood . . . because Borden has a wide range of catalysts with which to turn the right resin into a tailor-made adhesive. And the recommendation from any Borden adhesive specialist is backed by Borden's 35 years of experience in the field.

Why not get in touch today? Write the Borden Company, Chemical Division, Dept. WWP-56, 350 Madison Avenue, New York 17, N. Y.

INDUSTRIAL ADHESIVES

THE Borden COMPANY

CHEMICAL DIVISION

POLYVINYL • CASEIN • UREA RESIN • PHENOL RESIN • RESORCIN RESIN • EPOXY RESIN ADHESIVES

FIND OUT ABOUT
DON B. WALLACE'S
PRICE
QUALITY
DELIVERY
YOU OWE IT TO YOURSELF!

importers of
GENUINE MAHOGANY
leading source for
PACIFIC COAST LUMBER
Car Lots Only

- Band Saw Ponderosa and Sugar Pine
- California Redwood
- Douglas Fir Clears
- Fir Plywood
- Ladder Rails
- Overhead Door Stock
- Ponderosa Shop and Uppers
- Sitka Spruce
- Sugar Pine
- Upland Hemlock
- Western Red Cedar

WE MAINTAIN A WEST COAST BUYING OFFICE

Don B. Wallace Inc.
Guardian Building, Detroit, Michigan
Woodward 3-0882

Photo courtesy Tipps Tool Co., Inc.

TRUCK CONVERTED with lumber hoister unloads half-truckload package of prefab house at erection location

afforded by means of three hand levers mounted in the cab of the truck operated by the driver in his driving position. Load capacity is limited only by available power, winch capacity of 12,000 lbs. and breaking strength of the cable of 30,000 lbs. The size of the truck generally determines the size of the load that can be handled.

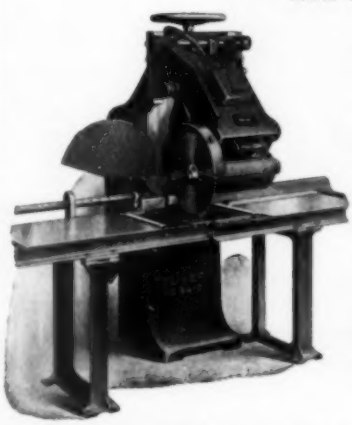
Removing Rubbing Pad Corns

MUCH TROUBLE with rubbing pads is caused by small lumps of finish which accumulate on the pads of a rubbing machine. A cabinet maker's scraper is sometimes used to remove these corns. A finisher of long experience recommends this corn remover. Mount a corrugated board, similar to a washboard surface, on a bench near the rubbing machine to rest the rubbing pads on when not in use. The operator starts the machine while the pads are on this corrugated surface so that agitation of the pads will remove any corns that have formed or started to form before the rubbing operation is started.

OLIVER Cut-Off Saw
has the smoothest action!

It operates by lightest touch and it's accurate to .005 inch.

Most compact!



For ease, speed and accuracy, this Oliver Cut-Off Saw is unmatched. With a light touch the saw moves in a perfectly straight line. Sturdy and compact. Finest ball bearings throughout, with tapered roller bearings for suspending arm. Takes saws 10" to 18" diameter to cut off or dado stock up to 20" wide. Write for Bulletin No. 94-D.

●

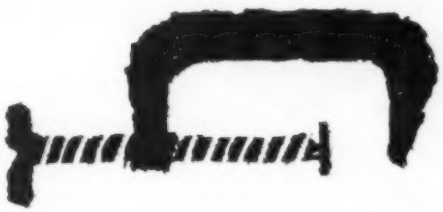
Standard saw table is 16 ft. long—two sections each 8 ft. long. Left hand section has automatic cut-off gauge with four stops. Right hand section has graduated scale.

Oliver also has a new Hydraulic Cut-Off Saw. Send for details.

OLIVER MACHINERY COMPANY
Established 1890 GRAND RAPIDS 2, MICHIGAN

WYNNE WOOD BOARD
OFFERS NEW PRECISION
NEW ACCURACY

Precision to specification, uniform density, homogeneous cross sectional structure, more highly refined than ever before — Wynne Wood offers great opportunity for industrialists and architects. Each day, new applications are discovered, whole new fields of usage are opened. Perhaps these remarkable boards — Wynne Wood 60, Corstoc or Arcatex — are the answer to your problem.



some Wynne Wood applications:
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counter tops
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Wynne Wood moisture controlled boards are now available in 40, 50 and 60 pound densities, in fractional thicknesses from ¼" to 1¼". Standard size 4' x 8'. All board accurately finished to .005". Can be veneered, painted, stained. Used for overlay (plastic or veneer), as a core material or as a finished product in itself.

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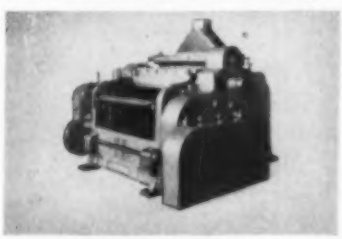
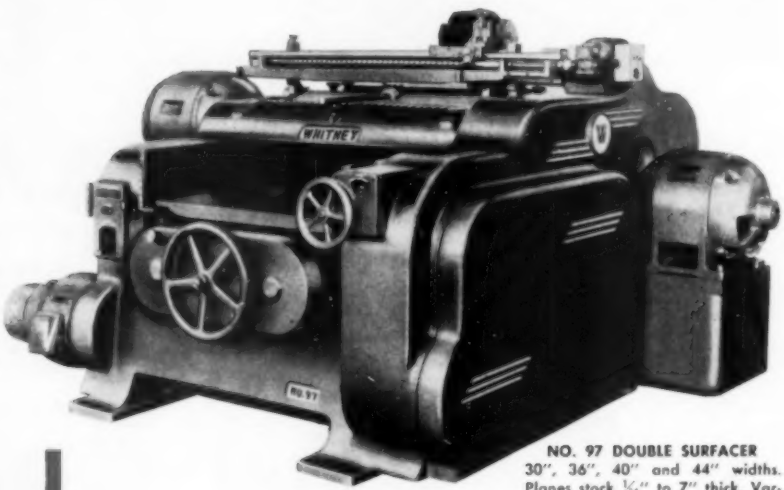
PRODUCTION SURFACERS

NO. 105 SINGLE SURFACER
24" width x 8". Variable Feed: 20 to 60 f.p.m. Cutterhead Motor: 7½ or 10 H.P.

NO. 32A SINGLE SURFACER
24" & 30" widths x 7¾". No. 29A—36", 40" & 44" widths. Variable Feed to 80 f.p.m.



NO. 37 SINGLE SURFACER
Extra Heavy Duty. Widths, 32", 40", 44" and 50". Variable Feed to 100 f.p.m.



NO. 97 DOUBLE SURFACER
30", 36", 40" and 44" widths. Planes stock 1/16" to 7" thick. Variable feed: 30 to 90 f.p.m.

The hundreds of Whitney Single and Double Surface Planers in the field today enjoy an enviable record of performance and service and attest to the fine quality of construction of Whitney planers. Today Whitney Single and Double Surfacers are the finest production planers ever built by Whitney, incorporating every time-tested and proven feature gained from more than 100 years of experience and know-how in fine planer construction.

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"Can Anyone Get Into the Act?"

Many months ago, a lumber manufacturer wrote that he had read one of our articles on a new chipboard plant and was interested in getting into this phase of wood waste utilization. "Is it patented," he asked, "or can anyone get into the act?"

That reader was not the first, and certainly he won't be the last, to express an active interest in this business of utilizing wood waste. The interest is industry-wide and it's growing like wildfire. A group of Southern California lumber and millwork people even believe the movement may hold at least a partial answer to their smog abatement problem. Out in the marketplace, a number of furniture manufacturers are testing case goods and tables made with chipcore to see how they perform as compared to conventional lumber core pieces. New custom chipboard plants report that almost before they get into commercial production large core stock users are offering to contract for their entire output.

In short, the particle board movement is gaining momentum every day in every segment of the industry, as further evidenced by the heavy demand for our illustrated booklet, "Chipboard from Wood Waste" (see Page 5), which has shown no signs of easing up since we announced its availability in a small advertisement in March Wood & Wood Products.

There may be some in the industry who fear that this fire is burning too fast and might spread out of control. We don't believe it. We think this movement represents one of the most important opportunities facing the industry today, and we're delighted to witness such active interest among so many responsible men – men who, for the most part, have demonstrated by their success that they are capable of recognizing a good idea when one comes along. In fact, we're convinced that the current vital interest in making "something you can sell at a profit from something you formerly burned up" was long, long overdue.

While it's the board type of operation that has caught the industry's fancy, there is no lack of concurrent interest in other forms of waste utilization, such as the molding or casting of salable by-products from wood waste. But no matter in what form the reconstituted logging and plant residues finally reach the market, and aside from their economic value, all will eventually add up to a sizable contribution to the cause of conservation. As U. S. Forest Service Chief Richard E. McArdle pointed out in his report on the 1955 Timber Resource Review, "Reduction of these unused residues (totaling 3 billion cu. ft. in 1952) is one effective way of making available timber supplies go further."

America is indeed a land of plenty, but we are also one of the world's most wasteful peoples. In this respect, lumber and wood products have long been typically and perhaps outstandingly American. But now, even though the TRR revealed more timber being grown than cut (there is some question as to what that finding really means in terms of commercially usable wood), the responsibility is more urgent than ever before, in view of our growing economy and the resulting increased potential for our industry's products, to bring to an early end this notorious tradition of waste.

It's a tradition of which none can be proud, and the means are at hand for erasing its mark from the industry's present record, if not from its past. Let's see less smoke coming out of waste burners and more from the stacks of plants that are utilizing wood waste to produce something useful – and profitable! It may even develop that in many operations the value of the by-products, as in steel and other industries, will become greater than that of the basic material.

1 ROUGH CUTOFF operator cuts defects from stock and trims each piece to length

2 HOPPER FED double-end automatic saw cuts pieces to finished length within .003 to .004 in.

5 MULTIPLE PURPOSE machine rough mills piece down middle. Operator then turns and . . .

6 PERFORMS in sequence finished slot operation and tapered reaming operation

7 SPECIAL MACHINE notches both ends of piece, then operator turns and . . .

8 INSERTS piece in automatic lathe where it is elliptically tapered

3 DOUBLE BANDING operations where pieces are prepared to accept metal ferrules at both ends

4 SANDING CONTOUR of piece on abrasive belt requires sensitive feel by operator to maintain correct contour

Machining Wood to Close Tolerances

How Richardson Bros. make rifle hand parts with specifications that read .025 in. minus .005 in.

WORKING WOOD to close tolerance has always been a challenging problem, thanks to wood's natural tendency to change with the weather. But whenever the subject comes up for discussion someone is bound to mention Bill Richardson as a man with a system that works. Evidence of his mastery of the problem is seen in the wooden parts for the M 1 rifle used by the U. S. Armed Forces which are machined by Richardson Bros. Co., Sheboygan Falls, Wis. to specifications that read .025 minus .005 in.

While such tolerances might concern manufacturers of wood products, Bill Richardson takes them in stride. Says he, "Our means of doing close tolerance work consists mainly of carefully controlled humidity and certain other conditions the trade already knows about.

Richardson Bros. Co. was founded in the fall of 1849 by three brothers and their father who started a sawmill on the present location of the Richardson Bros. plant.

Bill Richardson is a fourth generation descendant of the founders. His father, J. S. Richardson, of the third generation was extremely adept at devising machinery to do special jobs. In fact, he was so successful at it that J. S. Richardson Co. was set up to manufacture woodworking machinery.

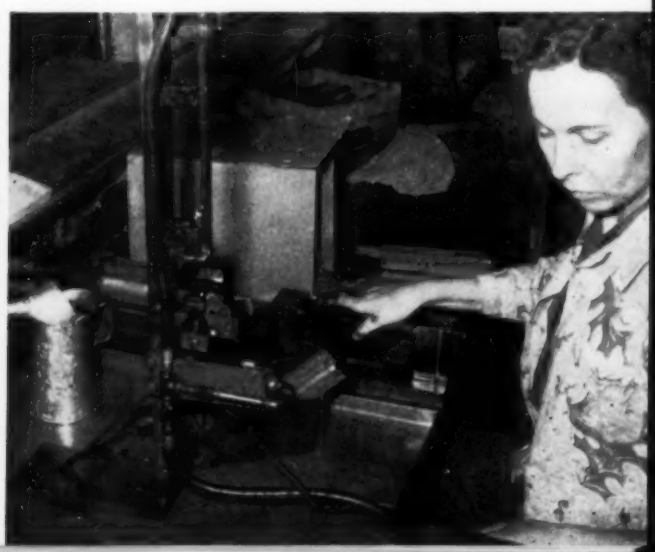
During World War II Bill Richardson was pressed into service to set up the machinery in gun manufacturing plants. He also had to teach operators how to run the machines.

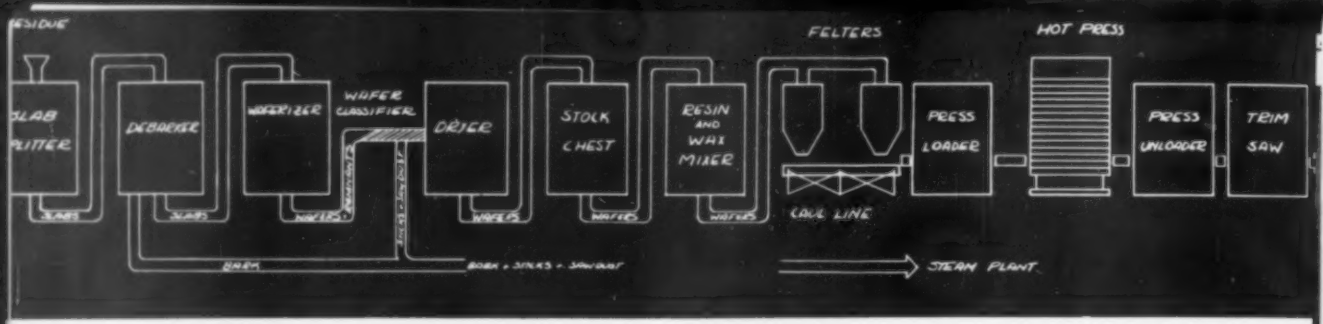
"Suddenly it came to me," he recalls, "that we could manufacture

(Continued on Page 94)

9 MACHINED PIECES are hung on chain conveyor which carries them into oil bath, allows them time to dry, returns them to starting place

10 FINAL OPERATION involves air-operated crimping of metal ferrules over end of hand guard



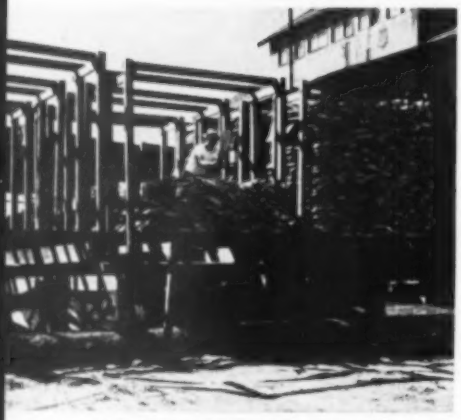


FLOW CHART OF Pack River Lumber Co.'s new waferboard plant, Sandpoint, Idaho

Photos by Pack River Tree Farm Products

New Plant Converts Slabs to Waferboard

Special debarker, waferizers, revolutionary steam press, mechanization featured in Pack River Lumber Co.'s new "Tenex" process



SLABS, EDGINGS and trim are stacked on racks at sawmill and moved by truck to waferboard plant

ONE OF THE MOST PROMISING new developments in the field of sawmill wood waste utilization is embodied in a waferboard plant at Sandpoint, Idaho, now in commercial production. The plant was pioneered and constructed by Pack River Lumber Co., whose president, J. M. Brown, Jr., initiated development of a new dry process in 1950. Plant cost has been more than $1 million, exclusive of research and laboratory developments.

Although superficially resembling particle board, Pack River's waferboard is not similar to either particle board or hardboard in composition or physical characteristics. The process, conceived by James d'A. Clark of Longview, Wash., employs neither ground nor defibrated wood.

Material used is made by slicing pieces of sound wood across the grain with cutter knives imbedded in the periphery of a rotating cylinder. The resulting wafers vary in width but have a predetermined thickness of from nine-thousandths to as high as fifty-thousandths of an inch. Mixed with chemical resin and petrolatum wax, the wafers are formed into a mat and subjected to heat and pressure.

The finished product, appearing on the market under the trade name Tenex, thus is solid wood all the way through and approximates the physical characteristics of natural wood. It can be worked with ordinary hand and power tools, and solid edges can be sawed and planed without the need for special treatment.

The Pack River people believe that, from a technical standpoint, the thin wafer has certain advantages in that it offers comparatively uniform smooth surfaces of thin sheets of wood which require less resin and take better advantage of the inherent strength of the wood itself. Use of wafers also insures a resin-face to resin-face contact in forming the mat, without resin waste on faces not in contact.

Underlying Pack River's development of the process was recognition of the need for utilizing more of the tree. The finest and most expensive lumber in the log is the first outside cut, yet before that can be made, a rounded slab of the same quality wood

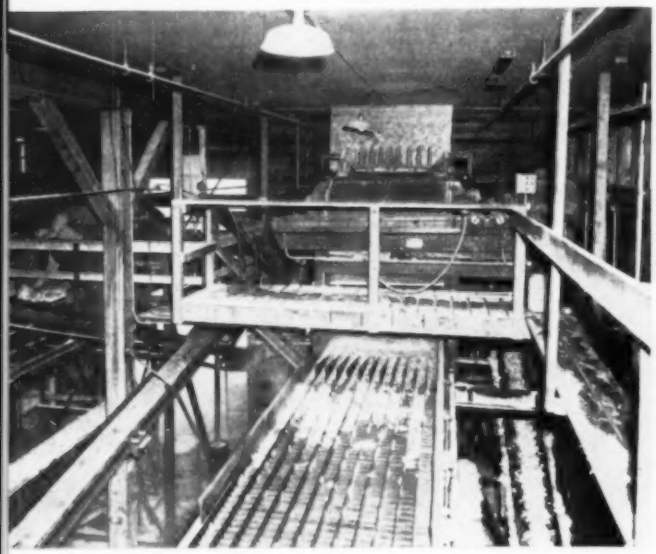
BARK from slabs and edgings is removed by hand-fed, low-cost debarker which uses only 35 g.p.m. of water at 1550 p.s.i.g. pressure

DEBARKED short length material is fed into one end of hot tank. Escalator removes material from other end of tank up to waferizer

STEAMING wood pieces are fed into large waferizer. Operator checks for maximum grain structure strength

AT TOP of escalator, workman feeds 2 ft. lengths of debarked wood to small waferizer

AS WAFERS leave large waferizer (background) they are transferred to classifying shaker screen which eliminates sticks and fines



CONVEYOR belt carries dried wafers to mixer — a 30 ft. long drum 4 ft. in diameter

has to be cut off in the sawmill and is usually consigned to the burner.

These slabs, along with edgings and trim of the same quality, are the raw material from which Tenex is made. Debarking is necessary, and Pack River developed and built in its Sandpoint machine shop an efficient, low-cost debarker.

A two-man debarker crew feeds the pieces either into a by-pass conveyor or through the debarker if necessary. The locally designed and built debarker, although requiring only 35 gallons of water per minute, has a pressure of about 1,550 p.s.i.g.

As in the case of the debarker, the new plant from start to finish is an instance of special design and construction. Only electric motors, pumps and similar items are standard.

In 1950 the firm built a laboratory plant which was semi-automatic in operation and included a two-opening press for manufacture of 4x4 ft. boards. The Clark process was perfected to the point that in 1954 construction was begun on the present commercial plant. Most of the process and new equipment are patented.

Most unique of the machinery necessary to the manufacture of Tenex are the waferizers and the hydraulic press. There are two waferizers, one fed with 2 ft. lengths of raw material and the other with pieces up to 4 ft. in length.

In both instances, raw material on the yard is constantly sprinkled in dry weather, since a wet piece of wood waferizes much better with considerably less loss than dry. For both waferizers, too, wood first goes into tanks kept heated by exhaust steam and condensate from unit heaters and process pumps.

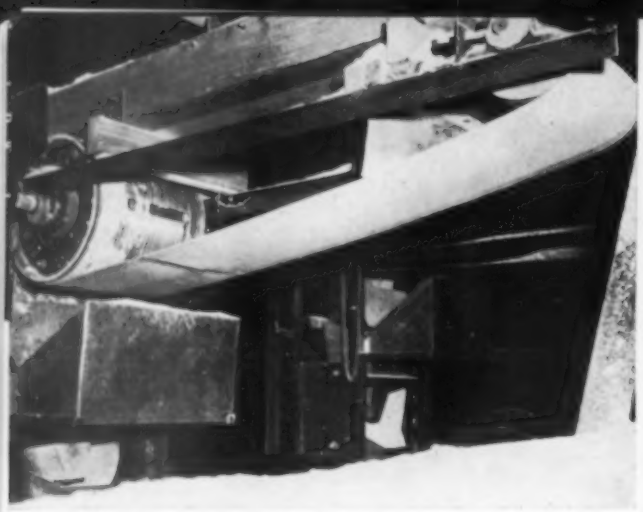
In the case of the larger waferizer, material wider than 6 in. or thicker than 4 in. is fed through a modified lath bolter before going to the debarker or by-passed to the wafering operation.

The waferizer operators place the material on the escalator chain feeding against the rotating drum of the waferizer in such a manner that the maximum strength of the wood is retained in the resulting wafer. This result hinges on the operator's keeping careful watch on the grain structure of each piece of wood.

Characteristics of the wafers being cut are dependent upon the type of stock and the rate of feed. This is important, since Pack River mills cut seven species of timber and no attempt is presently being made at segregating them.

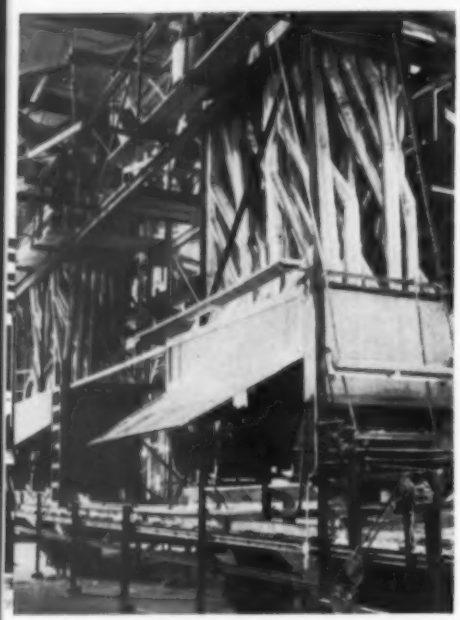
Thickness of the wafer is determined by the rate of feed, whereas width is fixed by the thickness of the stock being fed to it. Regardless of thickness and width, length of the wafer is always constant because the cutting edges of the waferizer's staggered knives are slightly less than 2 in.

Pack River's larger waferizer has a rotating cylinder 4 ft. long and 20 in. in diameter. Twelve rows of four



METAL DETECTORS remove "tramp" metal which might become mixed with resin-coated wafers

(LEFT) TWO of the plant's four distributors, located directly over felters. (Right) Portion of 40x10x8 ft. dryer equipped with eight 3 h.p. motors. (Top center) Ends of two mixers which serve two smaller stock storage chests



START of the caul line. Each enclosure has hinged side, two felters fed by maze of pipes from distributors above

knives, each 1 ft. long, are arranged so that only half the length of any one row is cutting at one time.

One of the features of the versatility of the process is that by rearrangement of the knives, size of stock and feeding rate, wafers of varying size to create new face patterns in the finished product are possible in the future. Selection of species also offers future possibilities for specific face patterns.

From the waferizer, wafers are transferred to a classifying shaker screen which performs several operations. The material is passed through several channels, which keeps "sticks" oriented until they are completely eliminated. Wafers and fines fall through openings to screens below. They are then shaken across chaff eliminators such as are found in wheat combines. Fines are shaken out so that only wafers are transferred to a conveyor belt which takes them to storage chests.

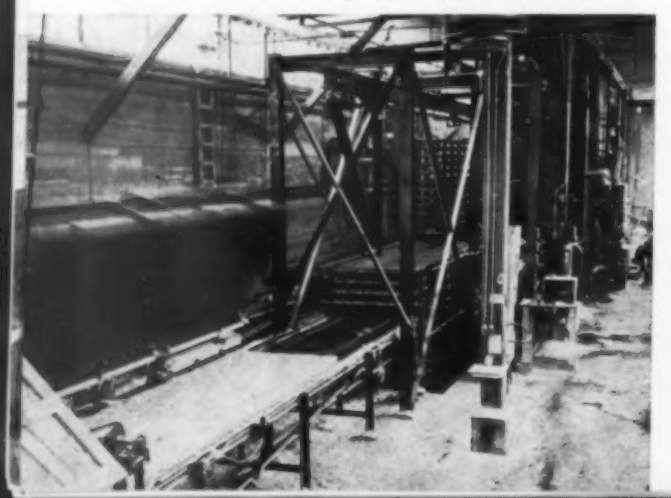
There are three of these storage units. A core stock chest is 20 ft. high and 40 ft. in diameter Two face stock chests are each 20 ft. high and 20 ft. in diameter. From this point in the production line to the felters, equipment is duplicated to permit eventual use of special faces on boards.

The chests are filled with wafers from the top by a rotating, vibrating conveyor. Wafers also are removed from the top by a process which minimizes changes in moisture content or mixture of the various species.

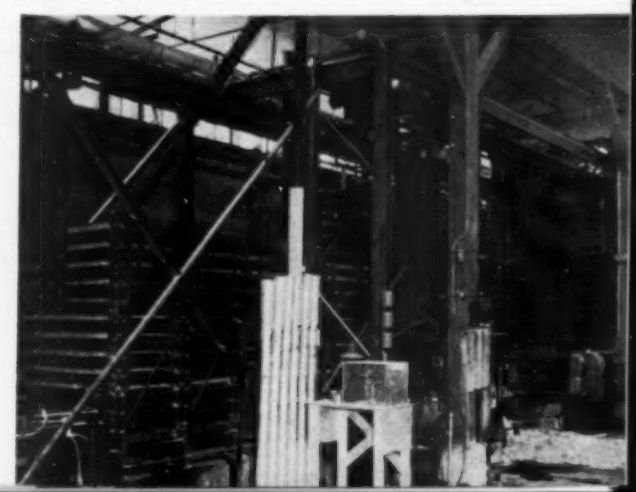
Design of each of the three chests is similar. All rotate in order to feed the elevator buckets which take wafers to the metering conveyor. Wafers go into the chest in stratified layers but are taken out perpendicular to this stratification.

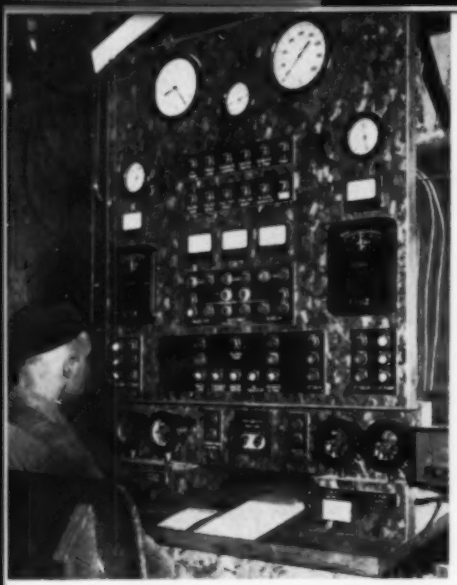
Headed on conveyor belts from the

WHEN 4 x 16 ft. mat is formed, caul is flipped over from the caul return line and gently placed on top of mat

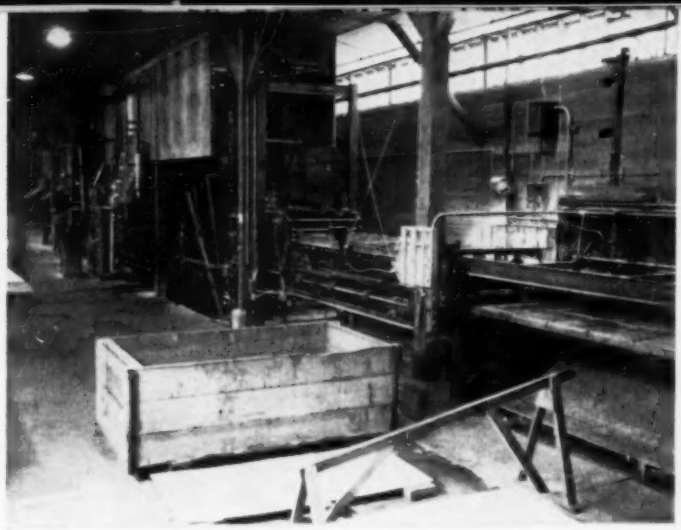


WHEN RECEIVING elevator has 12 mats (10 are shown), ram moves entire load into receiving rack, which automatically moves over in front of press where loading ram moves entire charge into press





ALL OPERATIONS from point where workmen feed wood into waferizers to where the finished boards are removed from trim saw are easily controlled by man at master control panel made of Tenex waferboard



BOTTOM board moves from press to elevator. In caul separator (right) bottom caul moves sideways to return line. Top caul is flipped over and returned upside down—thus faces are always protected

chests to the dryer, the wafers are transferred to a metering belt which passes under scalper rolls to insure a uniformly thick mat. In the dryer, they are carried on a moving wire net belt for approximately five minutes.

The dried wafers are conveyed to a mixer, where dry powdered resin and petrolatum wax are added. The core mixer is a 30 ft. long drum, 4 ft. in diameter, which is inclined, revolves, and has several flights inside to tumble the wafers and thoroughly coat them with resin for bonding and with wax to impart water resistance.

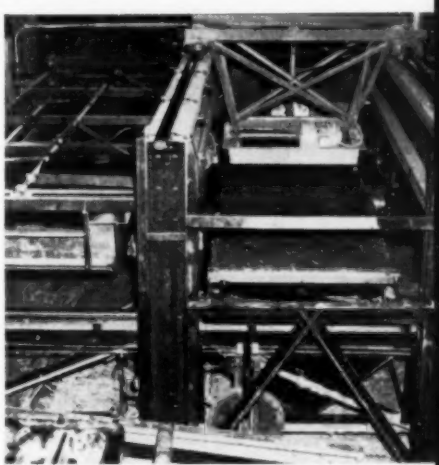
The coated wafers, now ready to be made into a finished board, are conveyed to distributors uniquely arranged to form a mat on the cauls passing beneath. Cauls are 51 in. wide and 196 in. long, allowing ample room for trim of the completed board, or for saw kerfs if cutting into smaller pieces than 4 x 8 ft, or 4 x 16 ft. boards.

There are four felters on the production line, Nos. 2 and 3 being used in manufacturing the current ¼ in. board. If future requirements call for boards with faces of specific species or finishes, felter No. 1 would lay a thin layer of face stock, Nos. 2 and 3 would lay the first and second halves of the core stock, and No. 4 would lay the other face.

Regardless of the arrangement of face and core stock, the finished board still retains the physical composition of solid wood throughout that is its outstanding characteristic.

When the 4 x 16 ft. mat is formed, a caul is gently laid on top and the "sandwich" of two cauls with a mat between is moved into the receiving elevator, which automatically moves

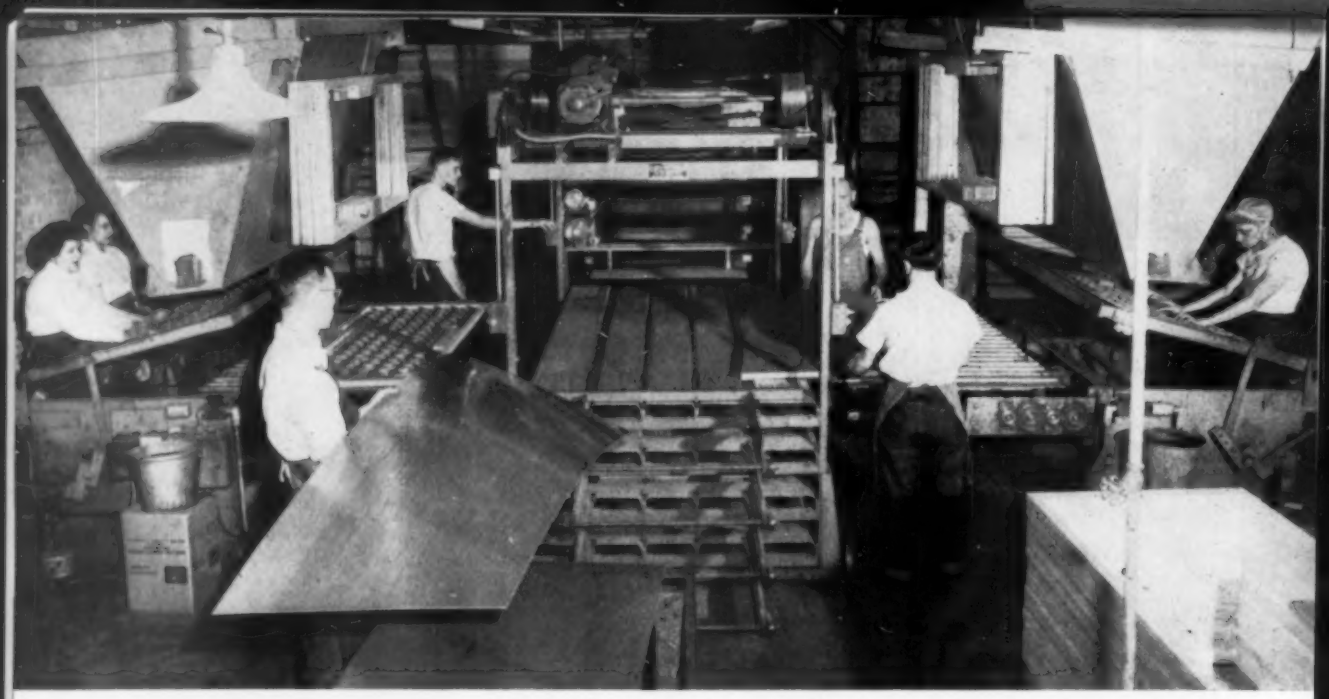
(Continued on Page 76)



BOARD from caul separator drops onto saw table (left) and is held in position by suction. Table moves to right, and three 12 in. trim saws cut board in half and trim 1½ in. off each end. Two traveling saws then trim length

AFTER BOARD is trimmed, saw table returns to original position, suction is released, and boards are taken off and stacked in this one-man operation

MANY UNUSUAL effects can be obtained with conventional and novel methods of finish because of three-dimensional appearance of finished board's wafer pattern



ON ASSEMBLY TABLE in rapid succession bottom panel is laid, frame is put in place, automatic jig places each core block precisely where it should be, top panel is put in place, whole assembly is loaded on specially designed press loader which moves up and down to assembly table height

STOCK for softwood frames is surfaced on new planer

CORE BLOCKS are cut by automatic machines from impregnated fiber board and blown in pneumatic tubes to hopper above assembly tables

Morgan Co. calls it . . .

"Industry's Most Highly Mechanized Hollow Door Line"

Conveyorized department is part of expansion program which provides twin production lines, 50 new woodworking machines, new and remodeled warehouse facilities, new elevator aiding lift truck handling

MORGAN CO., Oshkosh, Wis., celebrated its 100th anniversary in 1955 by preparing for the century ahead. Morgan designers studied public tastes and trends to modern design, and Morgan engineers explored and tested new materials, methods and equipment. As a result, the company put into production an entirely new hollow-core flush door to supplement its line of solid-core doors.

In addition, the company added 25,000 sq. ft. of warehouse space, repaved all existing warehouse floors and reconstructed warehouses, adding steel supports, to make greater use of lift trucks. Eight new lift trucks, a new elevator, two new hot presses and some 50 new woodworking machines were purchased. Many of the new machines went into the new door production line which Morgan engineers call "the most highly mechanized hollow-core door production line in the industry."

Called the Tee-Cor, the new door has a core made of moisture-resistant wood fiber blocks spaced in T formation to keep the faces of the door flat. They also equalize stresses in all directions under all climatic conditions, the company states, and provide protection against dimensional changes, warping and twisting.

To produce the new door, Morgan more than doubled the area formerly devoted to production of solid flush doors. In the enlarged area Morgan installed not one but two complete production lines, and added a second shift of workers besides. The two identical production lines flow in op-

GAUGE on press insures exact pressure will be maintained

TOUCH OF BUTTON moves loader forward, and five doors are automatically deposited in multiple-opening hot press

posite directions from the same point. They reconverge at a point on the opposite side of the building where finished doors come off both lines.

At the starting point the softwood frames that have been assembled with pneumatic air clamps are delivered. They are conveniently hung on pegs above the assembly table. Veneer panels which have been carefully inspected and machine coated with moisture repellent glue are also delivered to this point.

Meanwhile, the core blocks are cut by automatic machines from impregnated fiber board and blown through pneumatic conveyors to special hoppers above the assembly tables. There they are arranged in special jigs developed by Morgan engineers.

On the assembly table, in rapid succession, the bottom panel is laid, the frame is put in place, the automatic jig places each core block precisely where it should be, the top panel is put in place, and the whole assembly is loaded on the specially designed press loader which moves up and down to assembly table height for each successive load.

When the rack is completely loaded, a touch of a button moves the load forward and deposits it in the multiple-opening hot press. A special gauge on the press insures that exact pressure will be maintained.

The doors emerge from the press onto a conveyor which moves them in rapid succession through two double-end door sizers which sizes both ends and both sides, and then to a battery of automatic stroke sanders.

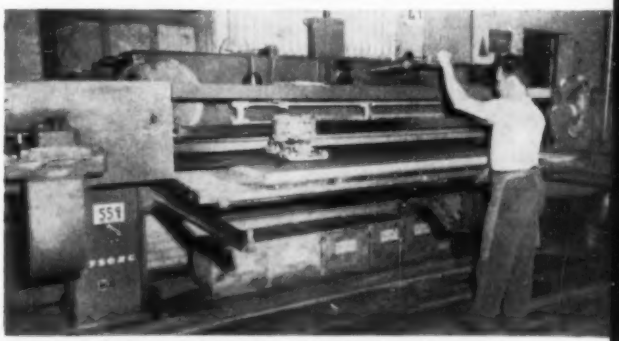
Final inspection is made under directed intense light rays which are so adept at picking up flaws that a human hair is immediately spotlighted on the surface.

After inspection the doors are picked up by lift truck and moved to the warehouse which has been enlarged solely for storage of the new hollow flush doors.

Some Machines and Equipment used by Morgan Co.:

Planers	Baxter D. Whitney & Son, Inc.
Door Sizers	C. K. L. Machinery Co.
Stickers and Moulder	Mattison Machine Works
Sanders	Mattison Machine Works, Wysong & Miles Co.
Hot Presses	Bertheisen Engineering Works, Inc.
Press Loaders	Bell Machine Co.
Lift Trucks	Clark Equipment Co.

TWO DOUBLE-END door sizers trim both ends and sides



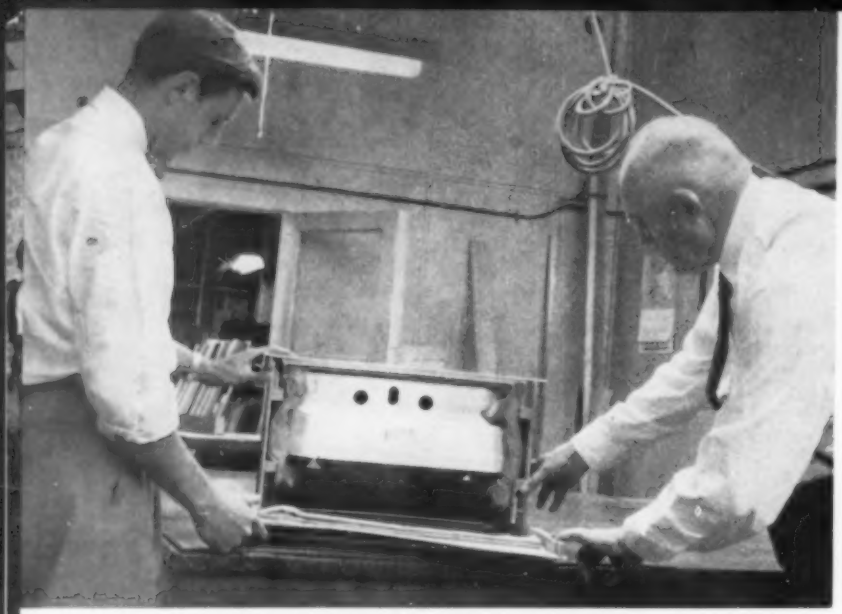
STROKE SANDERS finish doors to satin smoothness

FINAL INSPECTION is under directed intense light rays

MODERN warehouses permit mechanized handling

Design Group Ends Container Guesswork

How American Box Co. uses engineering, modern facilities, tested materials to produce ideal packages



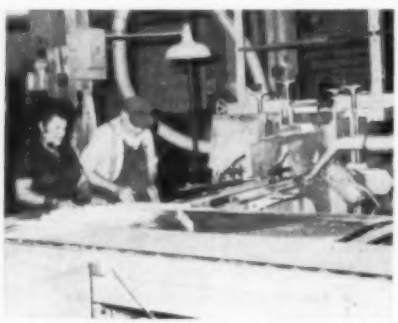
WIREBOUND ENGINEER and assistant sales manager check over hand-made "sample" wirebound in design department to test fit of components around sanitary ware. American Box Co. was first to earn Safe Transit Seal of Approval for wirebound designed to ship cast iron sanitary fixtures

CONTAINER DESIGNING and manufacturing is no longer a case of trial by hammer and nails, but rather a highly developed science combining specialized engineering, modern manufacturing facilities and tested quality materials. This is exemplified by firms like American Box Co., Cleveland, Ohio, which believes that there is for every product shipped by an American manufacturer an ideal package–ideal in terms of protection, utility, and economy.

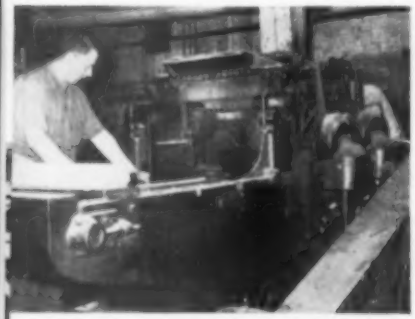
American Box Co., accordingly designs and builds "ideal packages" in terms of either a wirebound container, a folded corrugated container, a fireboard box with cleated wood supports,

(Continued on Page 74)

TWIN BANDSAW mill used for resawing boards from rough lumber



TENONING cleats on automatic machine for wirebound boxes and crates



PRINTING operation on cylinder box printer

CLEATING end sections on open back nailing machine

FEEDING VENEER sheets into wirebound stitching machine

FORK TRUCK moves wirebound mats to shipping department

STITCHING wirebound fastener ends on high-speed stitcher

DESIGNS are filed, making it easy for customers to reorder

WILLIAMS-WHITE HOT or COLD

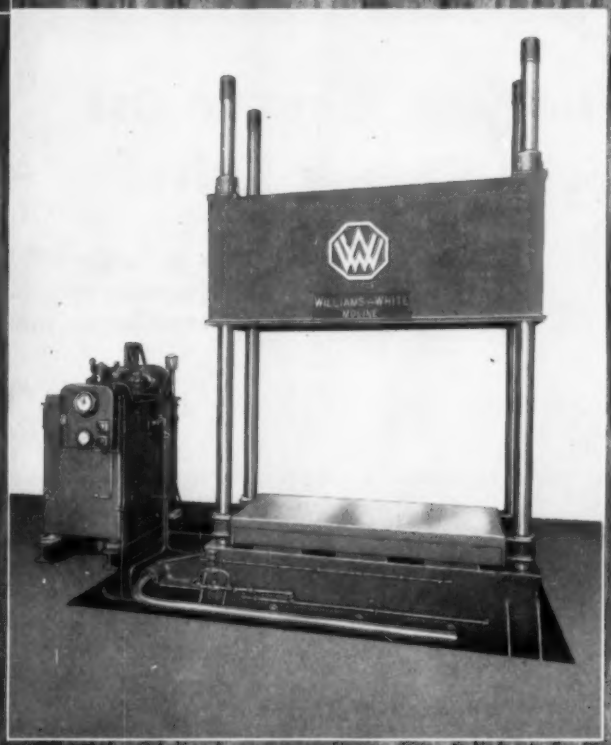
Laboratory or Production PRESSES

If your company is expanding or if you are "new comers" in the plywood, veneer or hardboard field, consider WILLIAMS-WHITE & CO. custom built hot or cold presses before you buy! Built to your exact requirements, WILLIAMS-WHITE presses represent the peak of up-to-date design and craftsmanship.

Your specifications as to capacity, plate size, number of openings, types of controls, etc., are built into each WILLIAMS-WHITE hot or cold press. They are available in column or A-frame construction, with steam, fluid or electrically heated plates.

Above is a typical WILLIAMS-WHITE laboratory press, of 90 tons capacity, plate size 38" x 24" and daylight opening 12 inches.

At right is a WILLIAMS-WHITE cold press of 575 tons capacity, with plate size 106" x 54" and adjustable daylight opening, 80 to 123 inches.



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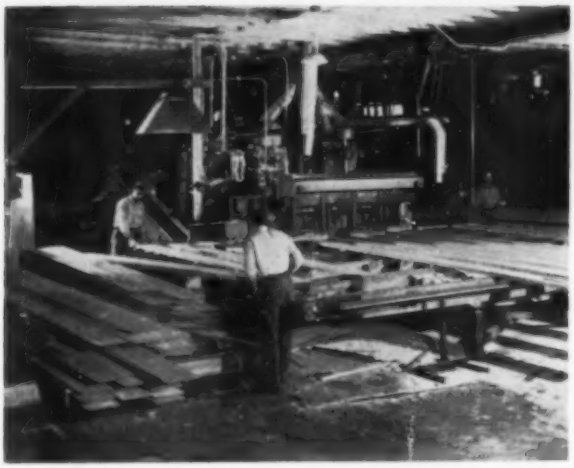


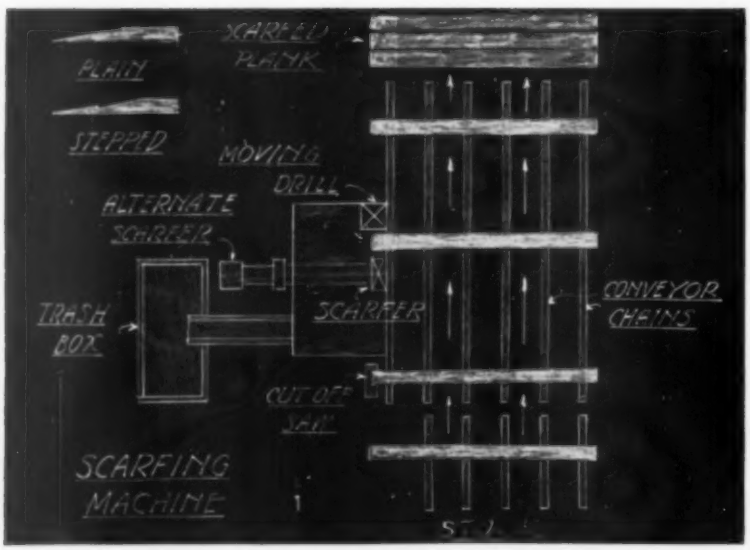
DOWN-TIME was reduced since carbide knives have been used on this specially designed scarfer at Timber Structures, Inc.

How and When to Use Solid Carbide Knives

Success in hardboard, lumber and plywood applications foretells wide use—Tips on jointing carbide

By REX V. REYNOLDS

Sales Development Engineer
Kennametal, Inc.



SCHEMATIC DRAWING of scarfing operation at Timber Structures, Inc. Alternate scarfer is used to cut stepped scarf seen in upper left corner

WITH THE INTRODUCTION of cemented carbide in the early thirties, woodworkers with progressive and inventive minds envisioned the new material as a possible miracle cutting tool. Many purchased the expensive tungsten carbide and experimented on their own, some successfully; but most were doomed to failure. The metal-cutting industry did likewise at approximately the same time, but the successes were sufficient to warrant continued testing and the closely knit machining industry soon made rapid strides in the application of these new carbide compositions.

The woodworking industry now stands on the threshold of an equally great acceptance of this material. Success will be in direct proportion to the educational program the woodworking and carbide industries adopt now to provide sound application and design information to actual users.

Cemented tungsten carbide is not a steel and has many characteristics that differ greatly from steel. The logical appraisal of these properties and a desire to utilize them, will put you well on the road to success in any given application. For one thing, with such a large contrast as two to one in the coefficient of expansion of steel and carbide, the possibility of large sections of carbide being brazed successfully to steel is very remote. Overlooking this fundamental in the early tests contributed to most of the failures of carbide when applied to moulders, jointers, planers, and other applications where brazed knives were used.

Tungsten carbide-tipped saws were one of the first applications in woodworking, and the present success in this field is well known. In considering the application of solid tungsten carbide to existing straight-knife woodworking equipment, important factors include alignment, balance, rigidity and cutting angle. We speak of straight knives, such as in planers, jointers, moulders and shapers, because they offer the greatest potential economic benefits to the most users.

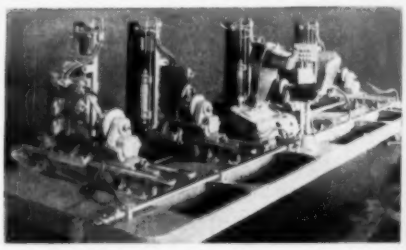
During the past 18 months, the carbide industry has developed techniques by which high quality solid carbide knives up to 50 in. long have been successfully manufactured and applied. By mechanical holding methods, the carbide knives are strain-free and provide such outstanding performance as to make them economically attractive to practically all users of woodworking equipment.

For a number of years, there has been some contention that carbide knives could not be successfully

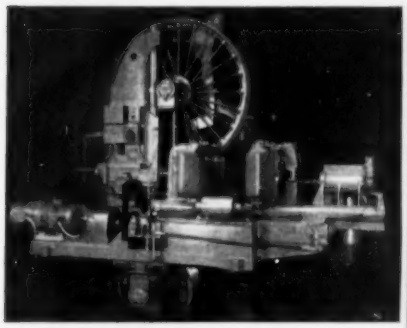
Higher Production
Lower Overhead
Greater Profits

PRESCOTT

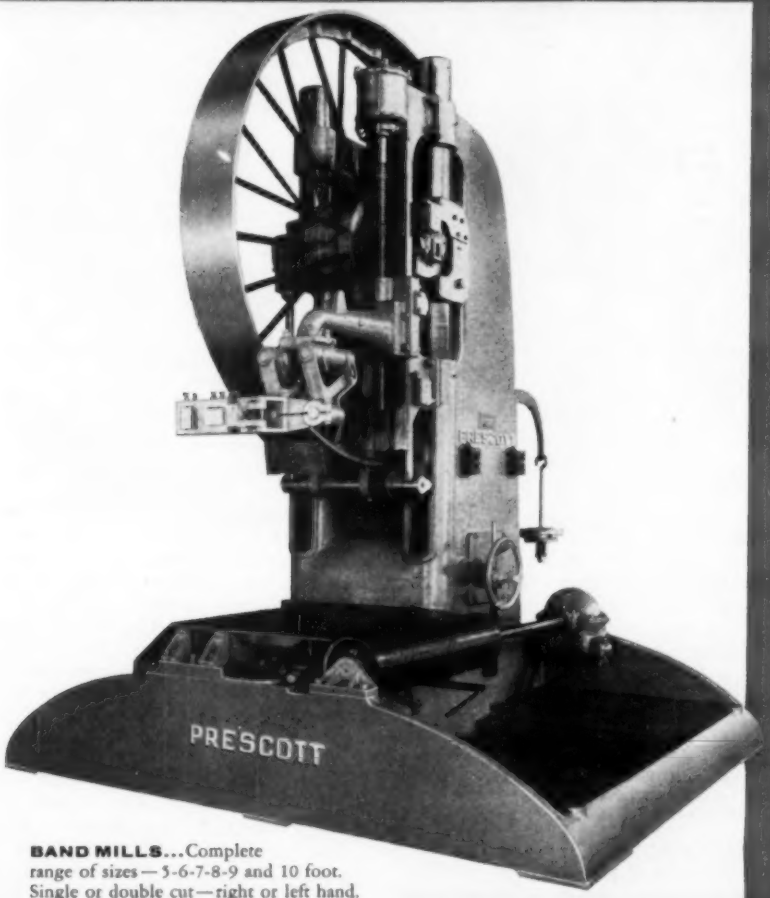
Sawmill Machinery



CARRIAGES Rack and pinion; screw block. Medium and heavy-duty. Right and left hand.



VERTICAL AND HORIZONTAL RESAWS Complete range of sizes—5-6-7 foot. Precision accuracy—minimum kerf waste.



BAND MILLS... Complete range of sizes—5-6-7-8-9 and 10 foot. Single or double cut—right or left hand.

MORE SALEABLE LUMBER PER LOG is the result of the advanced engineering, service-proved basic features, heavy-duty construction, and the operating precision of Prescott sawmill machinery. You get maximum quantity and grade from every log.

LOWER PRODUCTION COSTS are assured. Log loading and turning are stepped up. You can cut more lines per minute with less waste. Downtime is virtually eliminated and slow, costly, old fashioned methods can be scrapped immediately.

INCREASED PROFITS naturally follow when you install Prescott heavy-duty, sawmill machinery. It's specifically designed to meet today's needs for higher production, lower costs and greater dependability in every phase of sawmill operation. We'd like to show you how Prescott can help you increase the efficiency of your mill and thus help you to make more money year after year.

CALL, WIRE OR WRITE for complete information, detailed technical data, illustrated literature or the services of a trained sawmill engineer. No obligation, of course.

For Profitable Sawmill Operation... **SPECIFY**

PRESCOTT

HIGH EFFICIENCY, HEAVY-DUTY SAWMILL MACHINERY

THE PRESCOTT COMPANY, *Menominee, Michigan*

ground, jointed or maintained in the field. It has also been claimed that the knives would not stand the abuse from lumber having loose knots, glue lines or other normal production defects.

The writer has seen operations which leave no further doubt in his mind as to the acceptance of tungsten carbide by the woodworking industry. For example: (A) Fifty-inch solid carbide knives jointed and ground with diamond wheels on planers using standard grinding equipment. (B) Loose-knot red cedar machined with solid carbide knives at 650 f.p.m. without damage to the knives. (C) Thirty-inch carbide knives jointed at 5,400 r.p.m. (D) Steel lag screws purposely planed at 3,600, 5,400 and 7,200 r.p.m. without breakage or ill-effect upon the carbide knives. (E) Power required per unit of production is reduced when using carbide knives.

To bring the facts a little closer to home, let me take you step by step through some outstanding applications.

Hardboard Application

The Forest Grove, Ore., plant of Forest Fiber Products Co. wanted to plane the "screen" back off panels of tempered hardboard to produce a product with a close thickness tolerance. The panels are 4 ft. wide, and of varying thicknesses and widths. This surfacing was performed on a 50 in. planer with the head traveling at 3,600 r.p.m. and three solid 50 in. carbide knives in the head.

On a similar operation on the firm's standard density untempered hardboard, conventional knives in the planer had been reasonably satisfactory, although there had been considerable noise. It was necessary to devote some five hours per day to grinding and maintenance of the knives. The firm had experimented 3½ years with various cutter alloys to achieve acceptable results.

When planing the harder tempered hardboard, it was found almost impossible to get an acceptable finish. There was excessive noise due to knife deflection. Feed rate was low.

A test was started February 13, 1956, using a set of 50 x 1½ x 5/32 in. solid carbide knives. It was found that with the carbide knives the feed rate could be stepped up from 37 f.p.m. to 80 f.p.m., the maximum speed of the machine. Daily knife maintenance no longer was required. The excessive noise was eliminated, because there was but slight deflection with the carbide knives. The planed finish was satisfactory.

At present writing, these knives have cut 1,200,000 sq. ft. of tempered hardboard with 1½ hours of knife maintenance.

The use of the carbide knives has been under the supervision of Gene Tower, plant superintendent, and Larry DeBondt, superintendent of trimming and shipping.

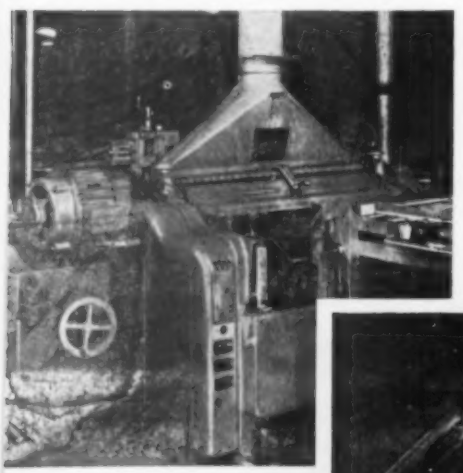
Four Ways to Better Carbide Results

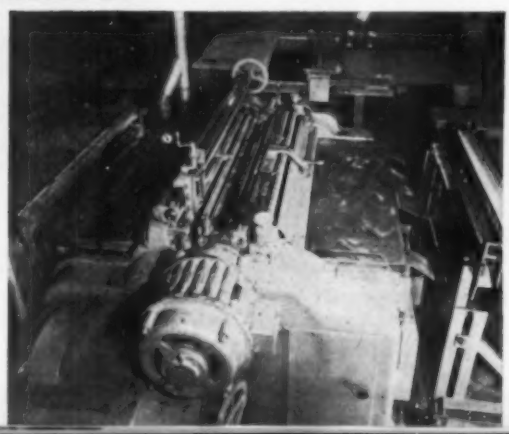
1. Tungsten carbide is not of the steel family and should not be treated as such. Try to effectively utilize its best properties when designing or adapting for your requirements.

2. Hardness, high rigidity, and wear resistance of tungsten carbide make possible the economic machining of wood and wood synthetics where heretofore it has not been practical. Basic improvement of the machined product is also possible when using tungsten carbide.

3. Learn and use the best methods of maintaining carbide tools. Diamond jointing and grinding are necessary for maximum performance. Use proper techniques at your plant, or set up a maintenance routine with a good service shop.

4. Co-operation between carbide supplier and user is paramount. To obtain the maximum results, a free flow of information regarding end use is necessary. Complete information is necessary for a carbide supplier to give recommendations regarding the best grade, most effective cutting angle, and other pertinent job assistance.





CARBIDE KNIVES permit faster feed on the 50 in. planer used to plane tempered hardboard at Forest Fiber Products Co.

EXHAUST HOOD has been removed to show one of 50 in. carbide knives

Scarfing Operation

At the plant of Timber Structures, Inc., Portland, Ore., tungsten carbide is used in scarfing the ends of 2x10 Douglas fir lumber used in fabrication of the large laminated trusses and beams which are made there.

A specially designed scarfing machine is used which makes use of a conveyor moving 20 f.p.m. to bring the ends of the lumber under the scarfing cutters.

Two cutterheads are used. One gives a rough hogging cut while the other finishes the scarf. It must leave the lumber with a surface smooth enough for good gluing. Motors turn the scarfing heads at 3,600 r.p.m.

On the rough cutting head, standard high-speed knives are used. They are changed and ground every eight hours.

When tungsten carbide knives were installed in the finish scarfing head, it was necessary to hone the knives every 16 hours instead of every four hours as before. Downtime is one-half hour as before. Thus a saving of 7½ man-hours per 24 hours has resulted. In addition, the speed of the operation has been increased from 5,500 to 8,000 pieces scarfed in a 16-hour period.

The carbide knives are removed and ground once each week.

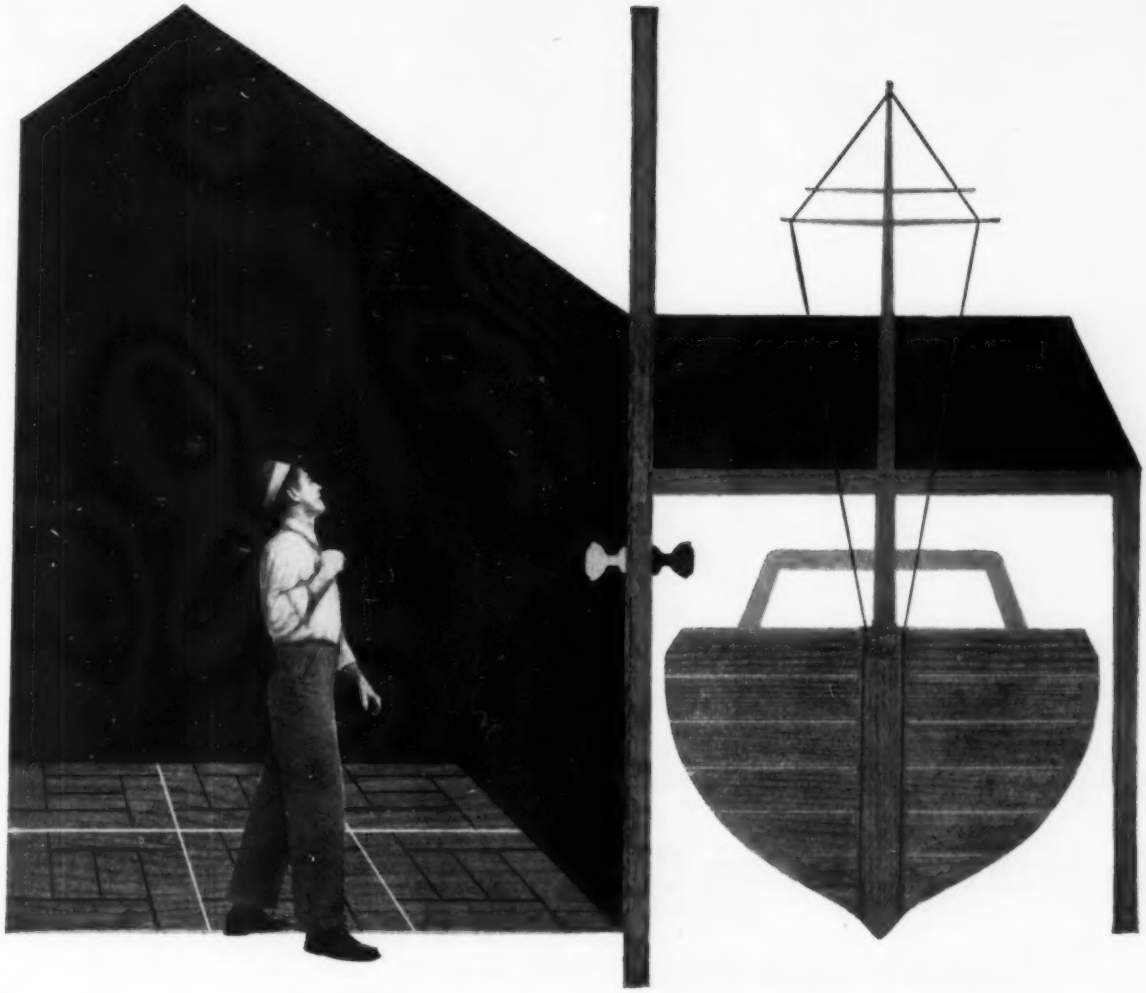
Scarfing Plywood

The McCleary, Wash., plywood mill of Simpson Logging Co. is presently using two 16 x 1¼ x 3/16 in. solid tungsten carbide knives which have run 12 weeks on a plywood scarfing job. Knives previously used on this job required grinding after one week. The carbide knives ran for this 12-week period and required no maintenance.

Jointing Carbide

Jointing carbide with a diamond stone on large high-speed planers created a minor problem at first. However, this was overcome and the answer is typical of problems encountered by carbide application engi-

(Continued on Page 78)



For colorless waterproof bonding of exterior wood...

MELAMINE

Monsanto melamine resin, LAUXITE MF-300, provides a completely waterproof bond—for boats, exterior doors and paneling, scarfing lumber and parquet flooring.

In durability, Monsanto LAUXITE* MF-300 is comparable to the phenolics and resorcinols. Yet its color is so light there are no problems with conspicuous glue lines or staining through veneers.

Melamine has excellent washability. It may be used immediately after urea-formaldehyde resin without a cleanup. LAUXITE MF-300 is furnished as a dustless powder and can be easily formulated to meet *both* minor and major durability problems.

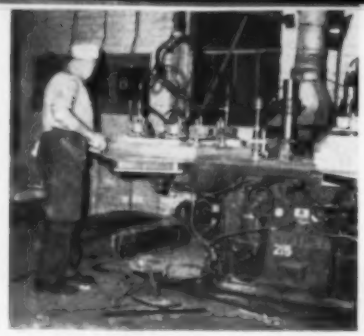
LAUXITE MF-300 bonds meet military as well as rigid civilian specifications. This resin is recommended as a straight adhesive (for either hot press or radio frequency gluing operations) or for upgrading urea formulations.

LAUXITE MF-300 can be economically formulated to meet your requirements for waterproof bonding. Write today for test samples and data sheets. Monsanto Chemical Company, Plastics Division, Room 1135, Springfield 2, Mass.

*LAUXITE: REG. U.S. PAT. OFF.

MONSANTO

LUMBER from twin cutoff saws is moved by conveyors through planers



FRAME PARTS are contoured on automatic shaper

HARDBOARD is ripped to side and top panel size

FRAME PARTS are drum sanded to provide better glue bond

Combine Hardboard with Wood to Make Television Cabinets

Zangerle & Peterson produces up to 1,200 simulated wood grain finish units per day, recaptures part of wood market lost to other materials

A WOOD MARKET which has been lost to some extent to competitive materials is being recaptured by Zangerle & Peterson Co., Chicago. This company, one of the largest contract cabinet makers in the industry, is combining hardboard with wooden frame parts in the manufacture of television cabinets with a simulated wood grain finish at the rate of 1,200 per day.

Hardwood for the frame parts is cut to acceptable lengths on one of two cutoff saws as it enters the plant. It is carried by motorized conveyor to the surfacer and then through a battery of ripsaws, shapers, tenoners and multiple boring machines. The exposed surfaces on the front of the cabinet are wood.

Meanwhile in another part of the plant the hardboard used for the top and two sides of the cabinet is cut to size. The hardboard is drum sanded on one side to provide a surface that will assure a proper glue bond between the hardboard and inside wood frame members.

On the sub-assembly floor, the hardboard side panels and the wooden frame members are coated with glue, placed back to back and inserted in a revolving fixture. Specially designed clamps are used to hold the units together until the glue has set. As the operator finishes each set, he revolves the wheel fixture, removes a set that has dried and repeats the cycle.

The ends of the four wood members for the exposed front frame of the cabinet are coated with glue and laid in a special jig. The operator touches a button and air cylinders push the parts into position to form a perfect rectangular frame. A corrugated nail is driven into each of the four corners to keep the frame square and rigid.

Using a battery of portable power tools, jigs and fixtures, workmen assemble the sides and front frame of the cabinet. It is then moved to another workman who spreads glue to the top surfaces. He places the top on the cabinet and secures it in place with wood clamps until the glue is set.

The cabinet is now ready for the final operations. The back surfaces of the cabinet are sanded to remove hardened glue and to blend all mating surfaces. The cabinet is placed in a special fixture and a vein line is sawed at the joint between the hardboard and wooden frame members. The purpose of this operation is to eliminate lacquer cracks from showing up after the cabinet has been sprayed with finishing materials.

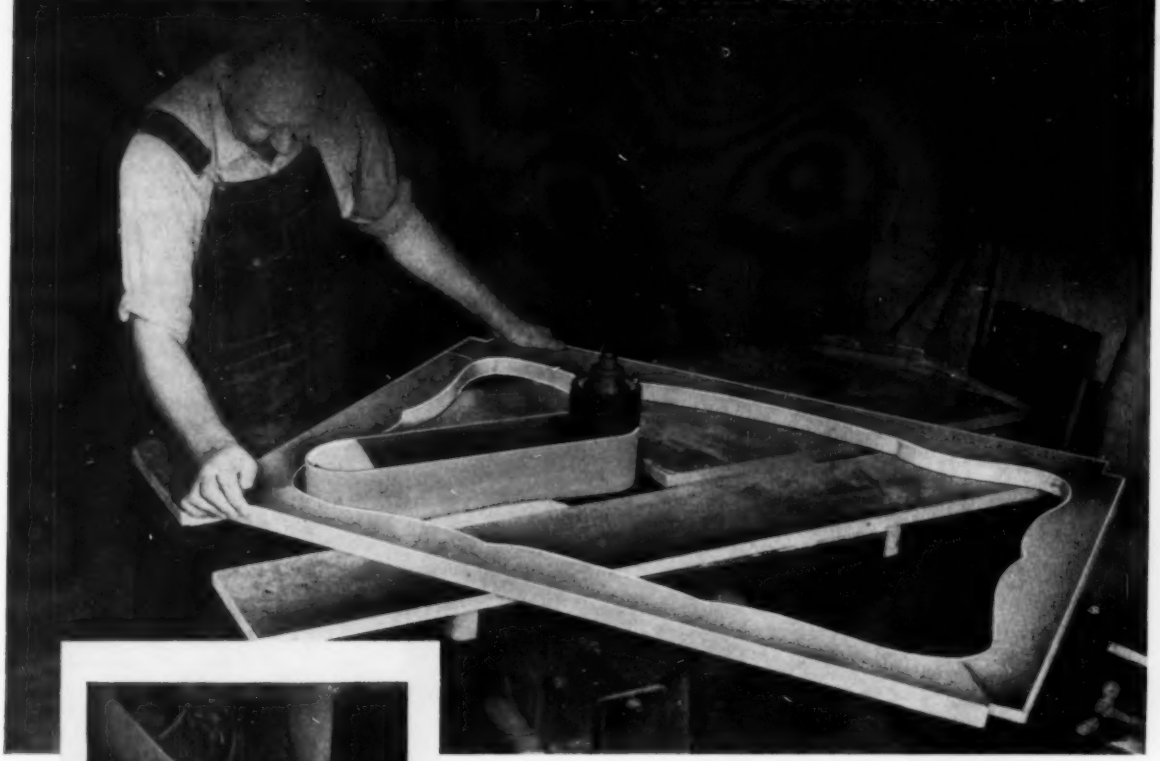
The cabinet is conveyorized to the flat belt sanding machines where the

GLUED frame members and hardboard are set in revolving fixture

AIR CYLINDERS position glue-coated ends of front frame members

WORKMEN assemble cabinets. Operator (right) glues on top

For the newest in coated abrasives . . . watch BEHR-MANNING!



Garnet Finishing Paper is tops for all your hand sanding operations.

Adalox Belts are favorites for cleaning up rough edges and glued areas.

Tufbak Paper is a natural for wet-sanding between coats.

Sanding curves right on the nose!

A BEHR-MANNING Abrasive Belt powered over a stationary nose block by an Upright Spindle Sander does the job quickly and easily on this wood mirror frame. This is a typical example of the successful results obtained when the right BEHR-MANNING coated abrasive is teamed with up-to-date machinery and methods.

Though your operations may be different, a BEHR-MANNING Field Engineer will gladly survey your problem jobs . . . suggest a solution . . . and prove his recommendation right in your plant. Write Behr-Manning, Troy, N. Y., Dept. WP-5.

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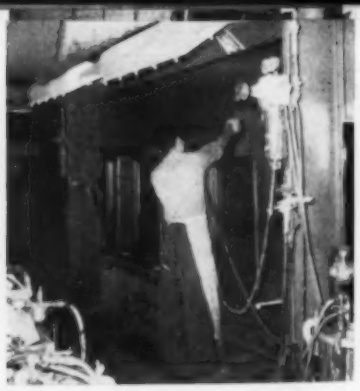
W-1

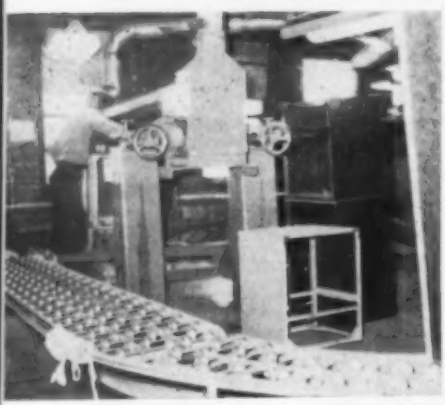
BEHR-MANNING ® *division of NORTON Company*

▲ COATED ABRASIVES
▲ SHARPENING STONES
▲ PRESSURE-SENSITIVE TAPES

BACK SANDING cabinet to remove hardened glue



FILLER compound is sprayed on cabinet



GROUND coat is thoroughly sanded

SIMULATED wood grain effect is printed on ground coat

SEALER is sprayed on top, two sides, front frame members

CABINET is thoroughly sanded—sides, top and front frame

FINAL lacquer coat is sprayed on

PACKED in carton, cabinet is ready for shipping

top and two sides are sanded with 3/0 and 5/0 grit sanding paper. The cabinet is then conveyorized to the final hand sanding and cabinet cleaning operations where it is carefully examined and all minute imperfections repaired, then moved to the finishing room.

The first finishing operation involves staining the front wood members. They are given a wash coat to protect the frame members and to raise the wood fibers. The cabinet then moves along the conveyor through a drying oven to the filler booth where the cabinet is sprayed with a filler compound.

The conveyor then moves the cabinet through a brief "flash" drying after which it is hand rubbed to fill all pores and give it a base for the ground coat.

Conveyors move the cabinet into the ground coat booth where a colored base coat is sprayed on. This base coat is actually one of the predominating colors in the final finish. It is the background against which the simulated grain is printed.

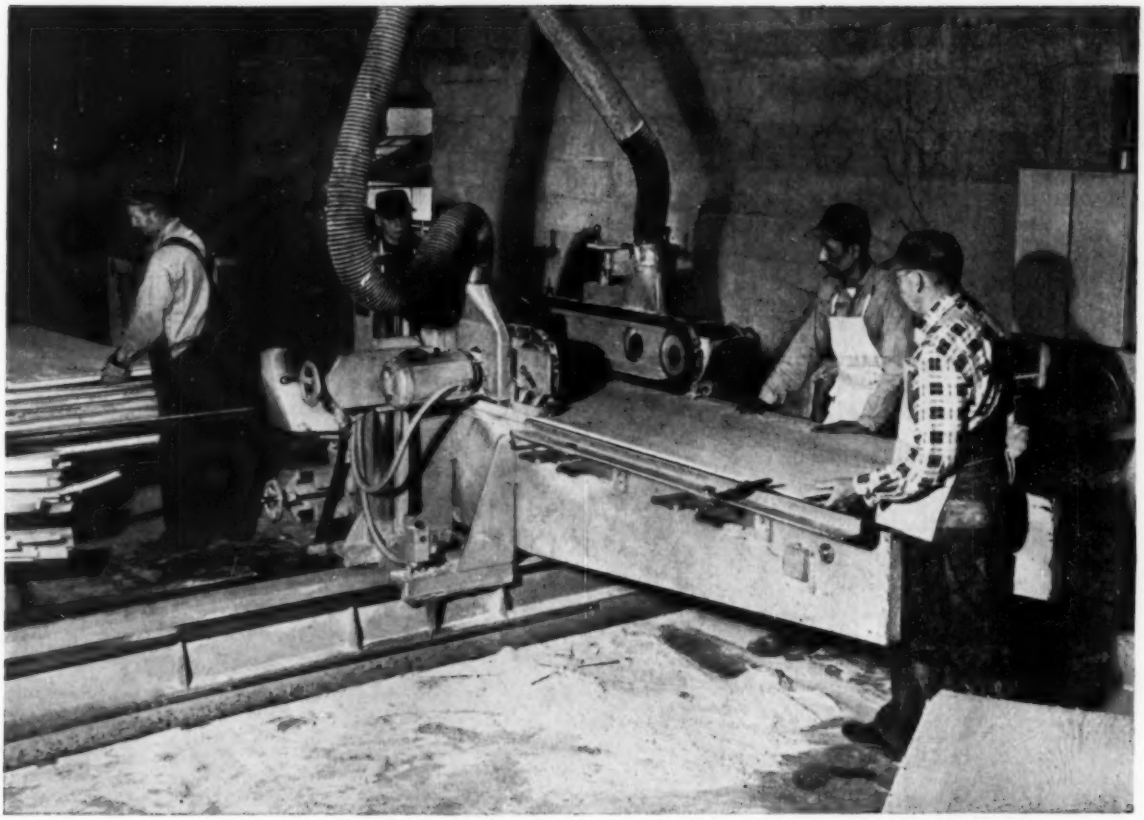
The cabinet then moves through a drying area into an inspection station, where it is closely inspected for any imperfections in the ground coat spraying. When the cabinet is passed by this inspector, it goes through another drying oven. When it emerges, the wooden frame members are steel wooled. The ground coat that was sprayed on the top and two sides is sanded with a fine grade sandpaper—usually 8/0 grit—to provide a glass-smooth surface for the printing operation.

The cabinet is now ready for printing. It is removed from the conveyor and put on a printing jig where it is tack ragged to remove all lint and dust just prior to printing. This is an especially important operation because lint will cause imperfections in the printing.

The cabinet moves immediately to printing where the grain effect is put over the ground coat. After printing of the top and two sides, the cabinet is removed from the jig and passed to an inspector and touch-up man who lightly touches up the slightest imperfection in the printing. The cabinet is then placed again on a slat-type conveyor and transported to the first sealer operation.

In the first sealer booth, the complete cabinet is sprayed—top, two sides, and front frame members. It is then conveyorized through "flash" drying into a drying oven maintained at 135° F. As soon as it comes out,

(Continued on Page 92)



Lakeland Door Company, Trims Doors and Operating Costs with a *Mereen-Johnson* No. 600 DOUBLE CUT-OFF SAW

"We've realized big savings since our Mereen-Johnson No. 600 Double Cut-Off Saw was installed three years ago," according to B. A. Kennen, Superintendent of Lakeland Door Co., St. Louis Park, Minn. "Our production capacity is up over previous sawing methods and we now produce over 600 laminated wood doors—trimmed both directions—in an eight hour shift. If necessary, we could produce up to 1,000 finished pieces in the same time and still keep within the required close tolerances."

Quick set-up time is a feature of Mereen-Johnson equipment as provided by a patented snap dog arrangement that allows fast adjustments to be made for varying size doors with a minimum of downtime. Since most of Lakeland's work is "custom-tailored" for individual home contractors, sizes may vary as frequently as every five to ten doors trimmed. This requires fast adjustments to maintain scheduled production. "In a normal shift we may trim as many as 20 different size doors."

While the No. 600 is of medium size, it is well suited for this type of operation and it displays all the quality and workmanship of much larger units. The basic construction of the No. 600 is compact and allows for fast, easy adjustments. Maintenance is practically nothing!

The No. 600 Double Cut-Off Saw is available with trims only—or with tilting cope motors and stationary dado arbor. Special attachments are available as optional equipment.

MEREEN-JOHNSON MACHINE CO.

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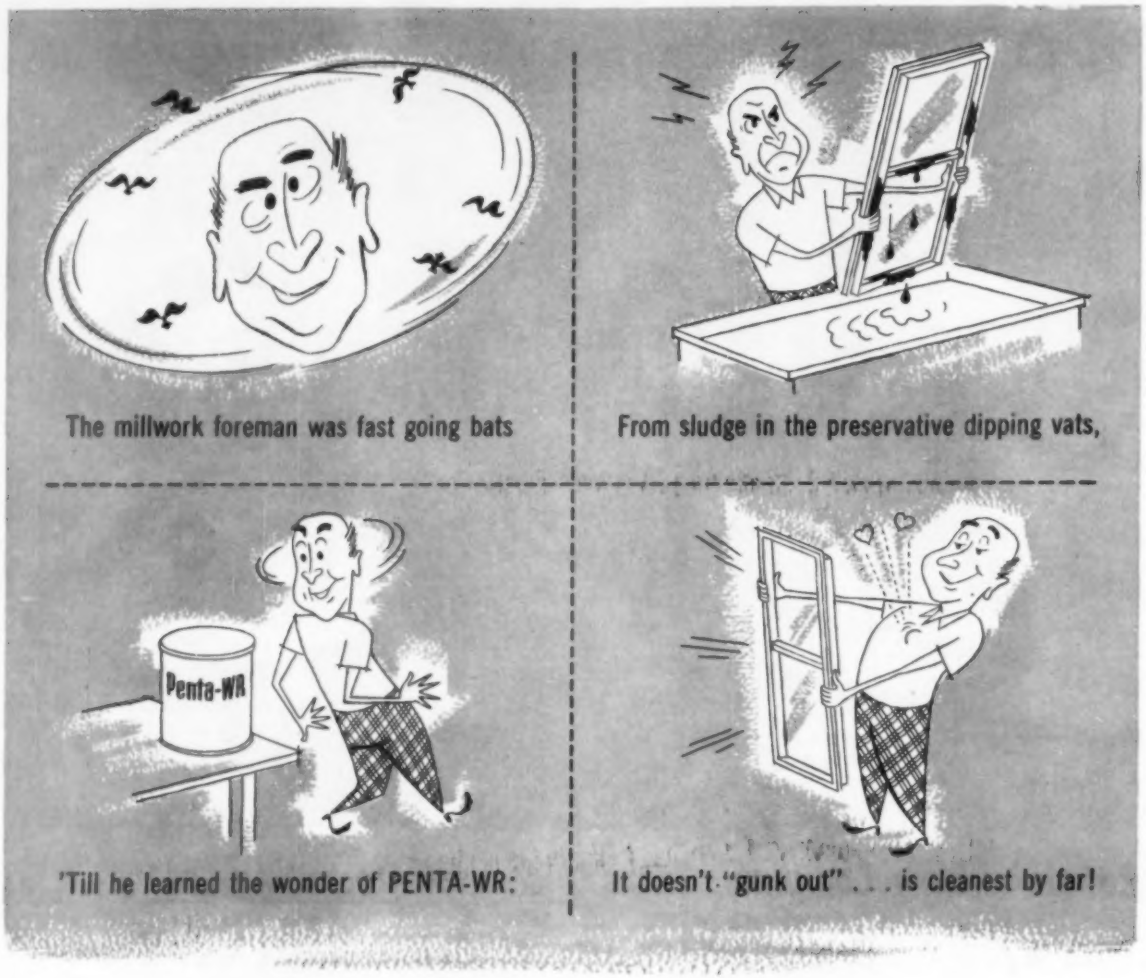
CUT-OFF SAWS	DOUBLE CUT-OFF SAWS	MULTIPLE CUT-OFF SAWS	GANG RIP SAWS
TENONERS	VENEER & PLYWOOD SIZERS & JOINTERS		RESAWS

For complete specifications, write for illustrated Bulletin No. 600-700.


The millwork foreman was fast going bats
From sludge in the preservative dipping vats,
Penta-WR
'Till he learned the wonder of PENTA-WR:
It doesn't "gunk out" . . . is cleanest by far!

Penta-WR doesn't **sludge!**

Improved water-repellent preservative protects millwork without staining it

If you've had a preservative sludge problem, switch to PENTA-WR now! This clear, golden yellow preservative stays clean and fluid . . . and gives your millwork maximum water repellency plus protection from termites, stain, mildew and mold.

PENTA-WR contains a full 5% PENTAchlorophenol. It's available in 1-to-3 and 1-to-5 concentrates and a ready-to-use solution from warehouses and plants throughout the country. Fast delivery and lower shipping charges help you meet production schedules and save on preservative costs. Write for descriptive literature, complete technical data and prices.

CHAPMAN® **PENTA-WR**

MEETS FEDERAL SPECIFICATION TT-W-572 AND MILITARY SPECIFICATIONS

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LIC. NO. WATER REPELLENT PRESERVATIVE APPROVED NATL. WOODWORK MFRS ASSN.

Five Northwest Mills Report Barker Cost and Operating Data

Panel discusses equipment types in terms of available power, space limitations, size of logs, original and maintenance costs

FIVE PRINCIPAL TYPES of hydraulic or mechanical sawmill log barkers being used in the Vancouver area were discussed by a panel of representatives of mills using them at a recent meeting of the Pacific Northwest Section of Forest Products Research Society in Vancouver, B. C.

The panel was moderated by Paul Heller, technical manager, Pacific Pine Co., Ltd. The comments of the panel were so revealing and timely that WOOD & WOOD PRODUCTS is herewith summarizing this panel discussion in print.

—The Editors

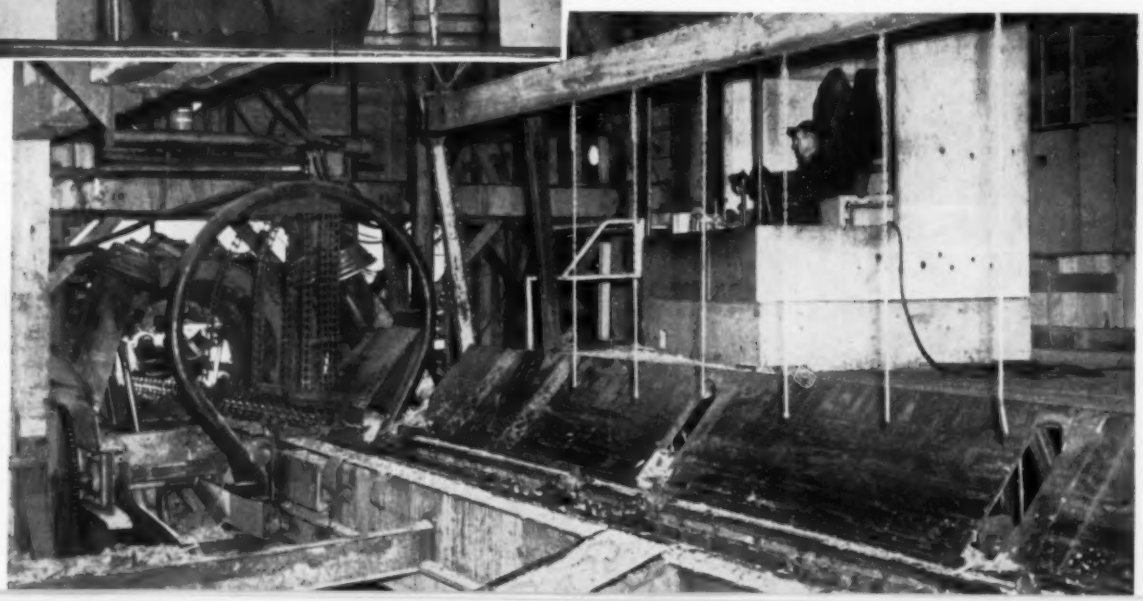
BARKER at Bridge Lumber Co. where lumber recovery is first consideration, chip recovery is secondary

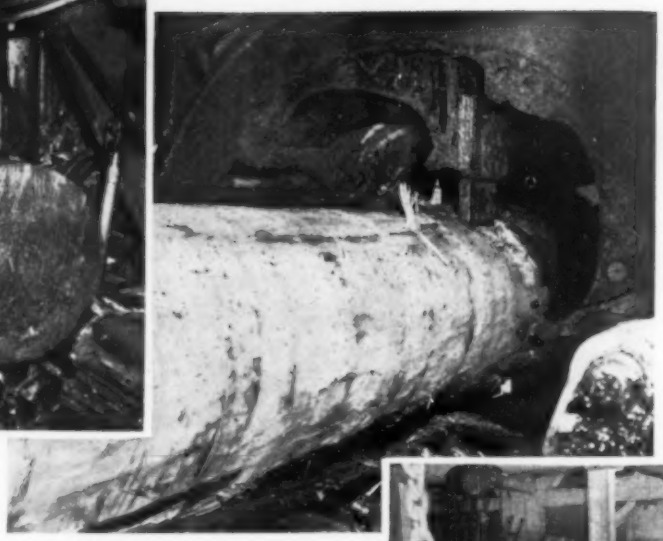
D. G. Allison, Lions Gate Lumber Co., Ltd., North Vancouver, B. C.

The Nicholson 50-in. Roto-Barker was selected by Lions Gate Lumber Co., Ltd., as being most suitable for a mill cutting Douglas fir and hemlock, 75,000 bd. ft. per shift, on a two-shift basis. Maximum log length cut is 24 ft., using a 9-ft. band head rig and cant gangsaw. Available power consists of 400 h.p. steam and 1,600 h.p. electricity. The barker was installed over three week-ends, without interruption of mill operation. An in-

DEBARKING OPERATION at Pacific Pine Co. is controlled by one man (left) with levers, buttons at both sides of him, and few more controls under his feet. . . .

(BELOW) LOGS are dropped one at a time into trough and moved through barker's ring. Pipe guard in front of barker prevents logs being accidentally thrown into air. Chain saw at right of guard is used to trim rough ends of logs or to buck logs to necessary lengths





(ABOVE) LOG being fed to barker at Lions Gate Lumber Co. and (right) emerging at the outfeed end

line position was favored because (1) a separate barker house would cost $30,000, (2) in-line saved manpower, and (3) it increased labor cost in the mill only by the differential between wages of the deck man and barker operator. Costs were: barker $79,000, subframe $5,000, accessories $23,000 and labor $4,000. Production was increased 5 to 7%, average yield was improved slightly and saw cost was reduced by 25%. There have been no major breakdowns and few delays.

Because of the 24 ft. maximum log length, a large proportion of the logs require bucking. A chain cutoff saw between barker outfeed and the deck, controlled by the barker operator, has eliminated three men on the pond saw. The latter saw is retained for crooked and very long logs. A few logs too large to be barked are sorted out and sold as peelers. Barking, chipping and delivery to scow cost about 60 cents per thousand bd. ft.

G. S. J. Bowell, MacMillan & Bloedel, Ltd., Canadian White Pine Mill, Vancouver, B. C.

Our experience with the 36-in. Simons barker began in 1948 when a ring barker was eliminated due to seal difficulties which subsequently have been overcome. An alternative barker, successful on large logs but having no hold-down for small logs and losing relative capacity on very small logs, was turned down mainly because of space requirements and higher cost.

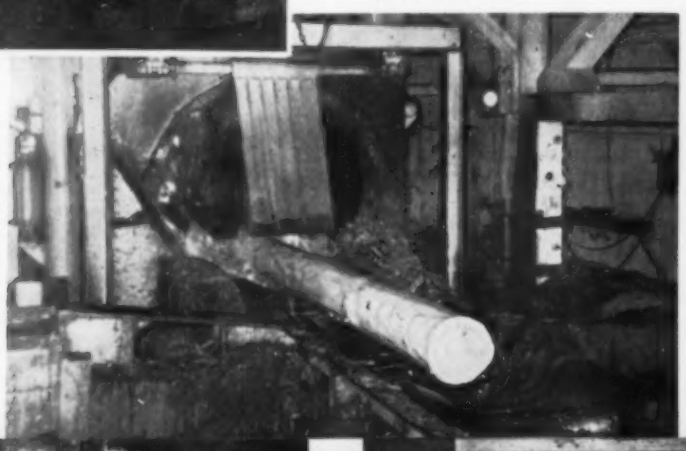
The advantages of the 36-in. barker are: low labor costs, low maintenance costs (average $650 per month), clean barking, high capacity on small logs. Disadvantages are that it is limited

(Contniued on Page 92)

LOG comes out of Canadian Forest Products barker

HOLD-DOWN DEVICE on barker at Universal Lumber & Box Co. acts to vary nozzle arc, oscillating speed, log haul drive speed

LOG ENTERING (left) and leaving (below) MacMillan & Bloedel's 36 in. rotary head barker



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Four Basic Job Evaluation Plans

Furnish management a key to valid job rating, sound wage structure, effective use of manpower, control over labor costs

By ROBLEY D. STEVENS

DUTIES and responsibilities of each job should be defined regardless of who does it

MEETING WAGE DEMANDS and determining what constitutes a fair and equitable rate for a certain job perplexes many employers in the wood industry. The importance of establishing harmonious relations with the workers is not only essential to the smooth functioning of a firm; it has a direct bearing upon the cost of doing business, often making the difference between a profit and a loss.

Dissatisfaction over pay rates does more to impair employee efficiency, encourage absenteeism and increase labor turnover than perhaps any other single factor. Ask yourself these questions: How do you allot job rates? How do you solve wage demands? Are there any inequities in pay among employees working on the same job? How do your rates compare with the general level in this industry and with those of your competitors?

Historically, the first scientific plan for the study of jobs and wage relationships was advanced in this country by Frederick W. Taylor, who in 1881 made time studies and analyzed jobs into units and duties. Since then several systems of job evaluation have been evolved and much material collected on the subject.

To obtain true and objective answers to the above questions there is no substitute for setting up a sound and practical job evaluation plan based on a thorough analysis of every job in your plant. Such a plan eliminates not only the hazards of arbitrary personal opinion but also habit in the determination of wage rates. It defines the duties and responsibilities of each job, regardless of who does it, and sets up basic and consistent policies for compensation.

The initial step in any job evaluation program is to define and analyze, to record and study all the factors and conditions involved in a given job. This simply means collecting complete, accurate and intelligible descriptions from the employee himself as well as from his supervisor.

The worker can do his part by filling out a questionnaire supplied by the personnel department. Such participation will aid in selling the job evaluation plan to the employee. He will feel greater confidence in himself and in the management by getting a clearer grasp of his functions and duties.

What type of job evaluation should be installed? The answer to that question depends upon management. Here are the four basic job evaluation systems presented for your study and use:

(1) **The Ranking System.** This plan is sometimes called the card sorting system, because jobs are arranged from high to low, as in a playing card deck. All jobs are ranked in order of importance. That is, in terms of other jobs—not in terms of money—and without reference to the person holding down the job. The best method is to list jobs of each department on a separate sheet, horizontally, and have the foreman arrange them vertically, in order of importance. The individual departmental lists are then combined into one organizational chart. With this type of ranking, it is essential to check and double-check with the various departments to avoid disagreement.

(2) **Job Classification System.** Under this system, a number of categories or grades are established in advance, and jobs assigned to these classifications. Such a method presupposes that each job contains definite elements or phases that can be classified into grades. The grades are established on the basis of difficulty and responsibility, as represented by the number and kinds of rules regulating the work being done, and by whether or not, and how often, the work is subject to check. The success of such a job measuring device depends on a thorough knowledge of all jobs, so that every work element may be taken into consideration, and the duties and responsibilities of every employee clearly distinguished.

(3) **The Point System.** This method is the most widely used today. Moreover, it is rapidly gaining still greater acceptance by American industry. Briefly, it works like this: A number of predetermined factors—such as age, education, years of training, experience needed, physical efforts involved—are found to be common to all jobs. A schedule of points is set up

(Continued on Page 94)

Further Guidance on Job Evaluation

To meet the needs of readers who want to delve further into job evaluation, WOOD & WOOD PRODUCTS has compiled a list of books for guidance. This list is available on request.—The Editors

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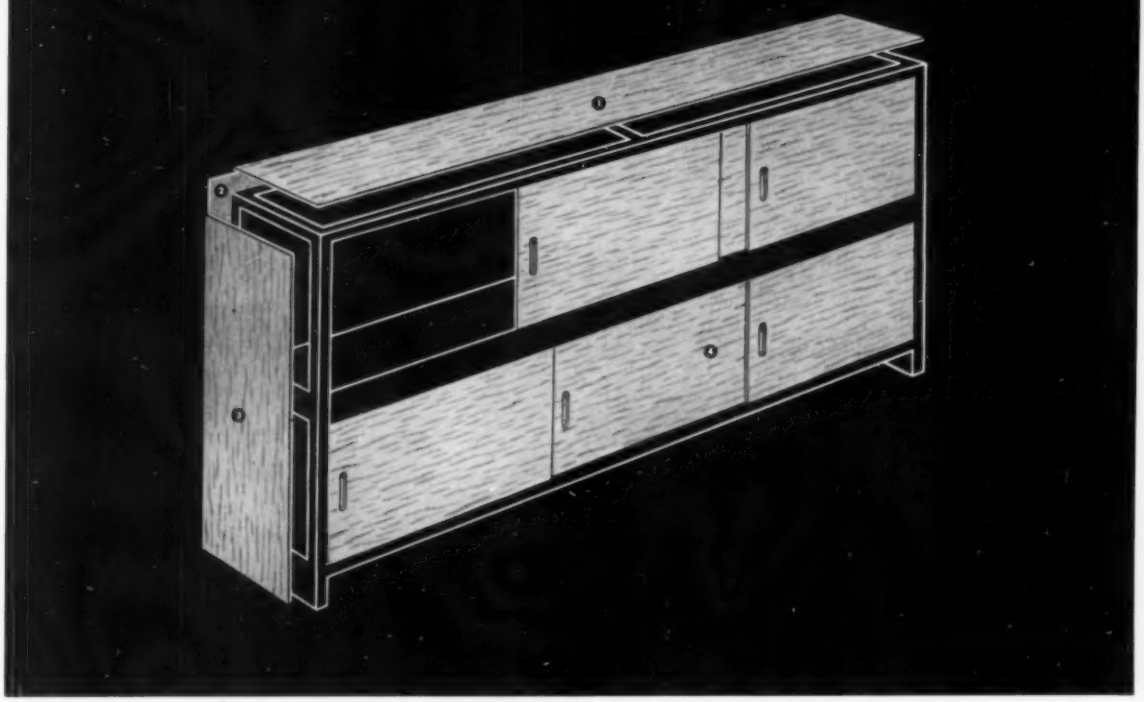

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The Municipal Auditorium of Asheville, N. C., which will house the tenth annual meeting of the Forest Products Research Society

F.P.R.S. Meeting to Feature Varied Sessions, Exhibits, Tours

ASHEVILLE, N. C.'s Municipal Auditorium will be the scene of the 10th national meeting of Forest Products Research Society, June 4-7. Under the guidance of President Moss B. Christian and General Chairman E. S. Harrar, 14 technical sessions and 15 Society open committee meetings have been planned by President-Elect Ralph H. Bescher and Vice-President Frank H. Kaufert.

In addition to these business meetings, and the extra features such as plant tours and "table top" exhibits by suppliers, the official luncheon on June 5 will feature the presentation of "WOOD" Awards for outstanding college graduate papers on forest products research, and Reuben B. Robertson, Sr., president and board chairman of Champion Paper & Fibre Co., Canton, N.C., as main speaker. Mr. Robertson has been a pioneer in the development of voluntary forest conservation programs, for which he received the American Forestry Association Distinguished Service Award in the Field of Business and Industry in 1954.

M. B. Christian
President

E. S. Harrar
Chairman

Ten leading forest products companies in the area will offer plant tours to guests from the F.P.R.S. meeting on June 8. The extrusion-type particle board plant at Broyhill Furniture Factories, Lenoir, N.C.; the modern conveyor system at Drexel Furniture Co., Drexel, N.C.; and the plant of Morgan Mfg. Co., Black Mountain, N.C., are the tours concerned with furniture manufacturing. For those interested in pulp and paper products, visits will be made to

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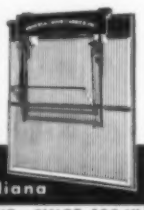

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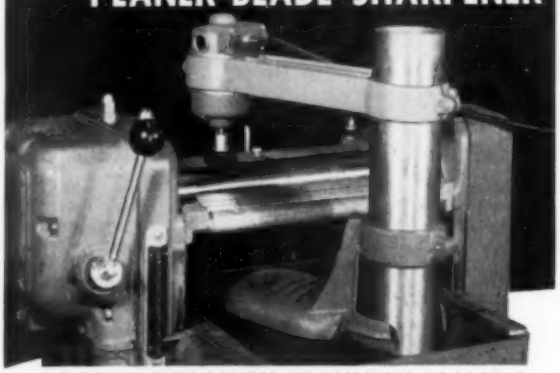

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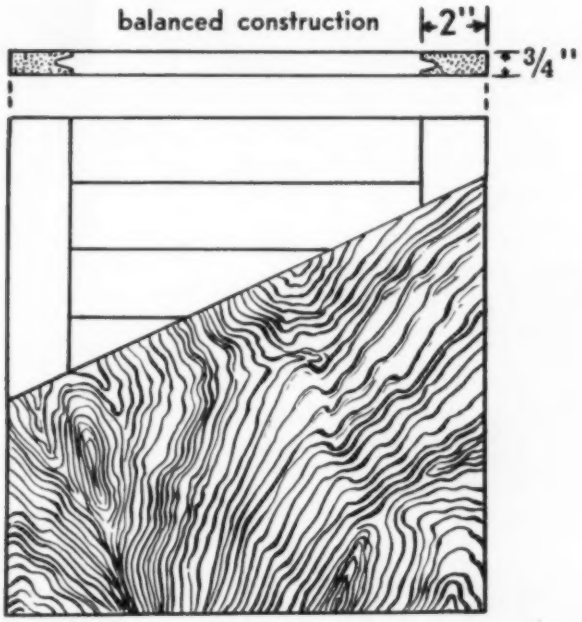

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Other visits will be made to: the hardwood dimension plant of Williams-Brownell, Inc., Asheville; the new prefabricated dry kilns at Draper Corp., Swannanoa, N.C ; the preservative treating plant of Taylor-Colquitt, Spartanburg, S.C.; the flat process particle board plant of Poinsett Lumber & Mfg. Co., Pickens, S.C.

Some 15 Society committees will also conduct open meetings, and these have been arranged by Vice-President Frank H. Kaufert, director of the School of Forestry, University of Minnesota. The subjects include: quality control, wood preservation, marketing, glues and gluing, veneer and plywood, industry-education, seasoning, chemical utilization, logging and sawmilling, machining, finishing, composition board, employment, publications, and membership.

F. H. Kaufert
Vice-President

R. H. Bescher
Chairman

The Society's president-elect, Ralph H. Bescher, who is district manager of the Wood Preserving Div., Koppers Co., is chairman of the technical program running throughout the week. The topics and their speakers are given below.

Monday, June 22

Session I—Quality Control in Wood Products 9:00 a m.

"An Application of Linear Programming to the Plywood Industry"—James S. Bethel, North Carolina State College; "Some Experimental Designs Applicable to Problems with Wood"—Robert J. Hader, North Carolina State College; "Management Possibilities with Quality Control Methods"—Charles A. Bicking, Office of Chief of Ordnance; "Acceptance Sampling of Veneer Using the Lot-Plot Plan"—A. E. Wylie, New York College of Forestry, and W. C. Hitchings, West Quincy, Mass; "Statistical Sampling Proves to be Efficient and Accurate in Receiving Inspection"—L. O. Reed and R. T. White, Brunswick-Balke-Collender Co.

Session II — (Panel Discussion) A Practical Approach to the Prevention of Decay and Termites in Building Construction 9:00 a m.

"A Practical Approach to the Prevention of Decay and Termites in Building Construction"—by architect; "Can Wood be Used Successfully and Economically in Home Building Today and Will It Perform as Well as Competitive Products?" — Representative, N.L.M.A.; Papers by a building Contractor, commercial termite control operator, and supplier of treated wood.

Session III — Preservation of Wood Materials Used in Building 2:00 p m.

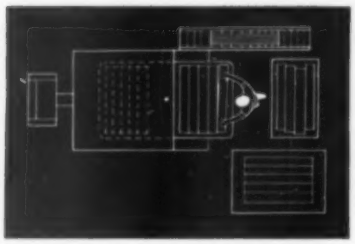
"How and What to Specify for the Preservative Treatment of Wood to be Used in Buildings"—R. B. Putman, Koppers Co.; "Marketing Preservative Treated Wood Products"— W. J. Butler, Dierks Forests Inc.; "Use of Preservatives in Board Products"— W. L. Meek, Minnesota and Ontario Paper Co.; "How to Prevent Fungus Damage to Wood Structures"—A. F. Verrall, U. S. Dept. of Agriculture; "The Oscillating Pressure Method of Wood Impregnation"—M. S. Hudson, Consulting Chemist, and S. T. Henriksson, Boliden Mining Co., Sweden; "How to Prevent Insect Damage to Wood Structures"—R. Joseph Kowal, Southeastern Forestry Experimental Station; "A New Method for Long Term Preservation of Wood by Chemical Modification"—E. Abrams, Southern Research Institute; F. G. W. Smith, University of Miami, Fla., Marine Laboratory; S. Miller, University of Miami, Fla., Marine Laboratory; R. R. Bottoms, Crestwood Laboratory; "A New Method of Applying Pentachlorophenol to Wood in Place"—R. G. Van Allen, Wood-Treating Chemicals Co.

Session IV—Marketing,—A Management Tool from Production Through Retailer 2:00 p.m.

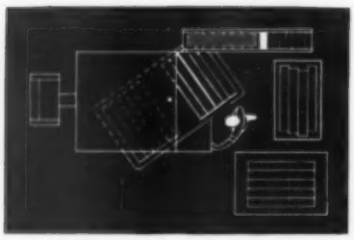
"Fundamentals of Market Research"—T. H. Cable, Mgr., Marketing Methods, Koppers Co.; "Activities of NLMA Trade Promotion Committee Relating to Markets" — L. J. Carr, President, L. J. Carr & Co.; "Wood Preservation Looks to Big Farm Market"—Representative of Dow Chemical Co.; Motivation Research in Consumer Purchases of Lumber—P. H. W. Creden.

Session V — Keeping Abreast in Wood Gluing 2:00 p.m.

"Recent Developments in Fast-Set-



While one charge is in curing position, operator lays up the next charge.



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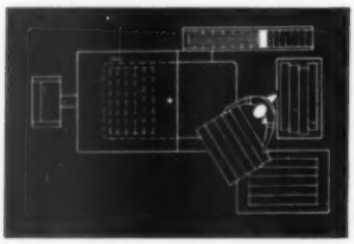

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ting Adhesives"—George W. Koehn, Armstrong Cork Co., keynote speaker; "High Pressure Decorative Laminates"—Joseph Coufal, National Adhesives; "Performance of Urea-Resin Glues at Elevated Temperatures"—R. F. Blomquist and W. Z. Olson, U. S. Forest Products Laboratory; "Some Factors Affecting the Performance of Wood Adhesives in Thick Glue Lines" (posthumously) — The Late Edward Hinken.

Tuesday, June 5

Session VI — Keeping Abreast in Wood Gluing 2:00 p.m.

"Production and Quality Control of Laminated Timbers"—Maurice Rhude, Unit Structures, Inc.; "Production Gluing of Random Length Stock"—H. B. Reed, Raybond Electronics; "Safe Bending Radii for Wood Laminates"—W. J. Finnorn, TECO, and Andrew Rapavi, Bureau of Ships; "How Long Will It Last?—A Study of Glue Line Durability"—J. W. Maxwell and C. C. Booth, The Borden Co.

Session VII — Improved Techniques for Wood Drying 2:00 p.m.

"Predicting the Uniformity of Moisture Content in Drying Lumber"—W. E. Pratt, California Redwood Assn.; "Uncover Losses and Cover Seasoning Yards"—Roy M. Carter, North Carolina State College; "Chemical Seasoning"—W. H. Colgrove, Bay Chemical Co.; "Comparison of Three Methods of Determining Whether Southern Pine Poles are Well Air Seasoned"—J. S. Mathewson, U. S. Forest Products Laboratory.

Session VIII—Chemicals from Lignin, Hemicellulose and Other By-Products 2:00 p.m.

"Whole Tree Harvesting—Pulp and Paper from Different Sections of Pine Trees"—R. C. Sproull, R. B. Parker and W. L. Belvin, Herty Foundation; "The Separation and Utilization of Hemicellulose"—J. F. Saeman, J. F. Harris and E. G. Locke, U. S. Forest Products Laboratory; "Effect of Swelling Agents and Catalysts of Esterification of Wood"—F. Bender and L. P. Clermont, Forest Products Laboratories of Canada; "Nature of Aspen Lignin"—I. A. Pearl, Institute of Paper Chemistry; "Quercetin from Douglas Fir Bark"—A. S. Gregory, D. L. Brink, L. E. Dowd, and A. S. Ryan, Weyerhaeuser Timber Co.; "Alkali and Thio Lignins from Pine Bark"—J. B. Doughty, F. W. Taylor and W. T. Henerey, West Virginia Pulp & Paper Co.

(Continued on Page 70)

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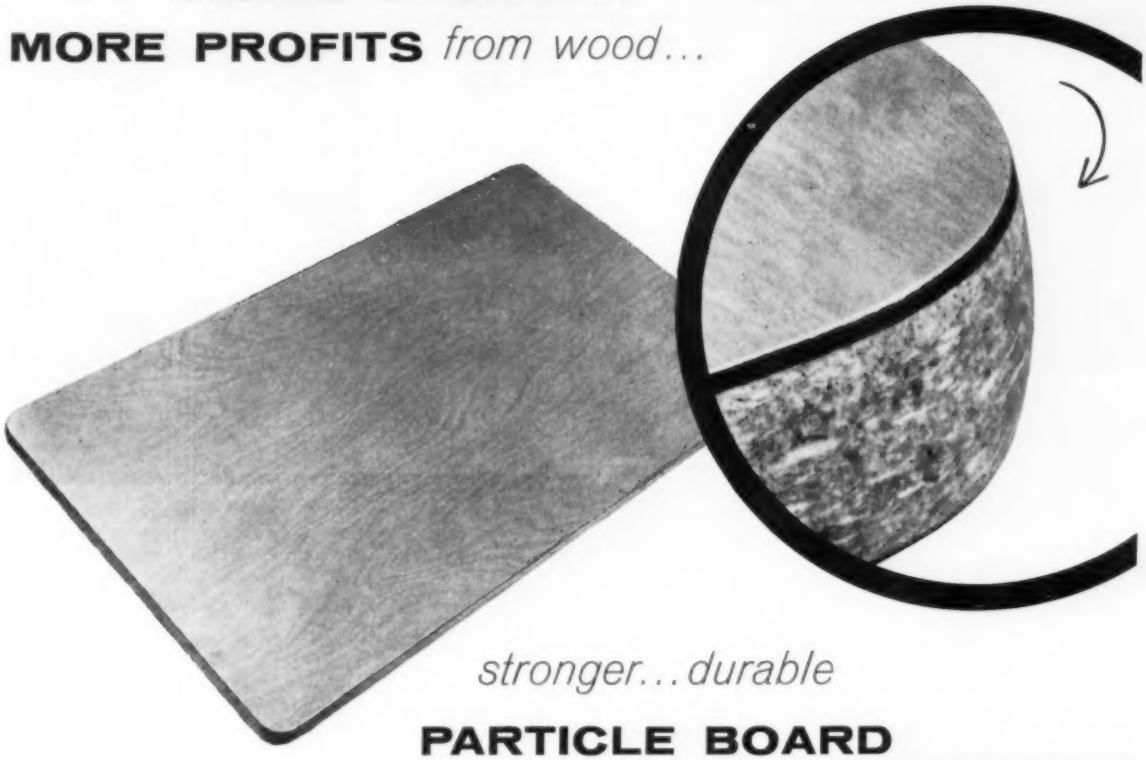
Suppliers Exhibit to Display Raw Materials, Light Apparatus

ONE OF THE HIGHLIGHTS of the F.P.R.S. meeting will be the Suppliers Exhibit, consisting of visual displays of raw materials and light apparatus, excluding heavy machinery in operation. Among the exhibitors are:

Adamson-United Co., Akron, Ohio
Bahnson Co., Winston-Salem, N. C.
Balsa Ecuador Lbr. Co., New York
Bay Chemical Div., Morton Salt Co., Chicago
Binks Mfg. Co., Chicago
Borden Co., New York
Bramco, Inc., New York
Carboloy Div., Gen. Electric Co., Detroit
Carolina Forest Products, N. C.
Catalin Corp., New York
Cellu-Products Co., High Point, N. C.
Chipcraft, Inc., Morristown, Tenn.
Dean Co., Rural Hall, N. C.
Decar Plastics Co., Middleton, Wis.
Deluxe Saw & Tool Co., High Point, N. C.
Dependable Machine Co., Greensboro, N. C.
Drexel Co., Drexel, N. C.
DuPont Co., Greensboro, N. C.
Durez Chem. & Plastics, N. Tonawanda, N. Y.
Franklin Glue Corp., Columbus, O.
Hardwood Corp. of America, Asheville, N. C.
Heil Co., Milwaukee, Wis.
Hoe Co., High Point, N. C.
Jenkins Div., Curt G. Joa Co., Sheboygan Falls, Wis.
Kennametal, Inc., Latrobe, Pa.
Lilly Co., High Point, N. C.
Marietta Paint & Color Co., High Point, N. C.
Masonite Corp., Chicago
Mall Tool Co., Chicago
W. F. Meyers Co., Bedford, Ind.
Miller-Hofft Co., Richmond, Va.
Moore Dry Kiln Co., Jacksonville, Fla.
National Adhesives, New York
National Casein Co., Chicago
Norman & Lambert Co., Greensboro, N. C.
Onsrud Machine Works, Chicago
Perkins Glue Co., Lansdale, Pa.
Power Wire Products, High Point, N. C.
Raybond Electronics, Needham Hts., Mass.
Reichhold Chemicals Inc., Charlotte, N. C.
Allen T. Sheppard Co.
Simonds Saw & Steel Co., Fitchburg, Mass.
Spotnails, Inc., Chicago
Standard Dry Kiln Co., Indianapolis, Ind.
Tri-State Co.
U. S. Plywood Corp., New York
Wel-Dri Co., Memphis, Tenn.
Weyerhaeuser Sales Co., St. Paul, Minn.
Wilco Machine Works, Memphis, Tenn.
Williams-Brownell Co., Asheville, N. C.
Woodwelder Co., Alhambra, Calif.

The **"INSIDE STORY"** *of*

MORE PROFITS *from wood...*



stronger...durable

PARTICLE BOARD

bonded with **DUREZ**

*WYNNE WOOD produced by Wynnewood Products Co., Jacksonville, Texas

STUDENT DESK AND CHAIR manufactured by American Desk Manufacturing Co., Temple, Texas

Stronger, more durable furniture, architectural, and industrial products are now made of wood particles or chips bonded with Durez phenolic resins. These resins have been specially developed in cooperation with wood industry leaders to make profitable use of low-cost or waste material.

Durez-bonded particle board, core stock, or compression molded wood is attractively wood-like in appearance, light in color, uniform in physical properties. It can be made in a variety of densities, hardnesses, and thicknesses, with maximum ease in controlling these characteristics. As a base for wood veneers and laminated plastics it is ideal.

Excellent examples of the quality products in which Durez resins play a big part are these schoolroom desk tops and chair seats and backs based on Wynne Wood* core stock. Almost unlimited possibilities are suggested by counter, sink, and table tops, cabinets, flooring, molding, and similar applications. These resins are also used with wood particles to mold such products as toilet seats, toys, and household articles.

Whether or not you are now producing bonded particle wood, Durez can provide answers to your questions, solutions to problems concerning the use of resins. Feel free to call on our experience in your field.

DUREZ®

Phenolic Resins for the Wood Industry

DUREZ PLASTICS DIVISION

HOOKER ELECTROCHEMICAL COMPANY

305 WALCK ROAD, NORTH TONAWANDA, N. Y.

HOOKER CHEMICALS & PLASTICS

NEW and IMPROVED PRODUCTS

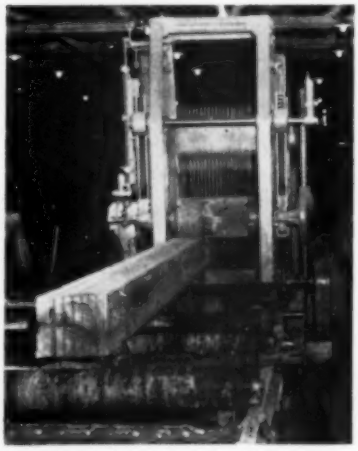
10 In. Tilting Arbor Saw

MFR.: Yates-American Machine Co., Dept. WP, 803 N. 4th St., Beloit, Wis.
DESCRIPTION: 10 in. tilting arbor circular saw to accommodate motors from 1½ to 3 h.p.
FEATURES: Operating mechanism is self-contained, and features arbor pulley adjacent to saw blade for direct transmission of power to saw teeth. Steel arbor is raised and lowered on dovetailed ways equipped with take-up gibs for adjustment. Heavily ribbed table top, 22x28 in., has right and left extension arms to double space. Miter gauge can be extended beyond front edge of table so stock 1x25 in. can be cross cut.

Tractor Logger

MFR.: Construction Machinery Div., Clark Equipment Co., Dept. WP, P. O. Box 599, Benton Harbor, Mich.
DESCRIPTION: Michigan Model 175 tractor logger.
FEATURES: Main advantages are power train, with heavy-duty torque converter, power shift transmission, and planetary wheel drive and steer axles. Lifts 20,000 lbs. at 0 m.p.h., and 14,000 lbs. at 4 m.p.h. Two especially designed log clamps can handle log 6 ft. in diameter, or several smaller

logs. Hydraulically operated, they close to 16 in., or can be adapted to close entirely. When fully raised to 11 ft. 7 in., the 3 ft. long lifting forks can be tilted downward at 39° angle, for reaching over pile of logs for pick-up. Maximum measurements: 8 ft. 7 in. wide, 21 ft. 11 in. long in carry position. Available in gasoline (127 h.p.) or diesel (133 h.p.) 6 cylinder engine models.



Gang Saw

MFR.: Wurster & Dietz of Germany, distributed by The Wheland Co., Dept. WP, Signal Mountain Rd., Chattanooga, Tenn.
DESCRIPTION: Gang saw.
FEATURES: Will saw entire logs, or one or two cants, at one time. Sawn boards are 96% dead accurate with remaining 4% ranging between 1/64 in. scant and 1/64 in. plump. Smaller

(Continued on Page 58)

FAMOWOOD . . . *the AMAZING*

ALL-PURPOSE PLASTIC for wood finishes!

Applies like putty . . . Sticks like glue!

FAMOWOOD is the answer . . . where wood finishes are important. Simple to use . . . efficient, lasting, time-saving, when filling wood cracks, gouges, nail and screw holes or correcting defects. Dries quickly, does not shrink. *Stays put* under adverse conditions.

FAMOWOOD sands easily, does not gum up sander. *Takes spirit dye stains freely.* Waterproof and weatherproof when properly applied. Ready to use—*"right out of the can."* Fifteen matching wood colors with matchless wood finishes.

USED BY . . FURNITURE MFGS. • SASH AND DOOR MFGS. • CABINET MAKERS • CONTRACTORS • BOAT BUILDERS • PAINTERS • AIRCRAFT PLANTS • PATTERN SHOPS • HOME BUILDERS • ALL WOOD PRODUCTS

FAMOWOOD descriptive literature and price list on request.
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Manufacturers of . . . FAMOWOOD • FAMOGLAZE • FAMOSOLVENT

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Mouldings and Interior Trim
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OUR SPECIALTY • MIXED CARS TO THE TRADE

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SMITH
Lumber Company

Mills at Anderson, Red Bluff, Castella & Wildwood, California

Sales Office at Anderson, California

copied....never equaled

THE SMITH ENDLESS BED DRUM SANDER

C-505 MODEL

Progress and H. B. Smith Machine Co. go together. Continuous development and engineering have resulted in the highest quality sanding obtainable.

H. B. Smith Co. has specialized in endless bed drum sanders for 60 years — since 1896. When H. B. Smith Machine Co. introduced the first endless bed drum sander to the woodworking industry — another traditional first was accomplished.

Self-oscillating drum mechanism, exclusive with Smith. Simple positive bed adjustment, exclusive with Smith. Simple positive drum adjustment, exclusive with Smith.

These and many other features are found only on the H. B. Smith Machine Co. endless bed drum sanders.

You owe it to the quality of your production to investigate the H. B. Smith Machine Co. 2, 3 and 4 drum endless bed sanders.

Ask about our lease plan

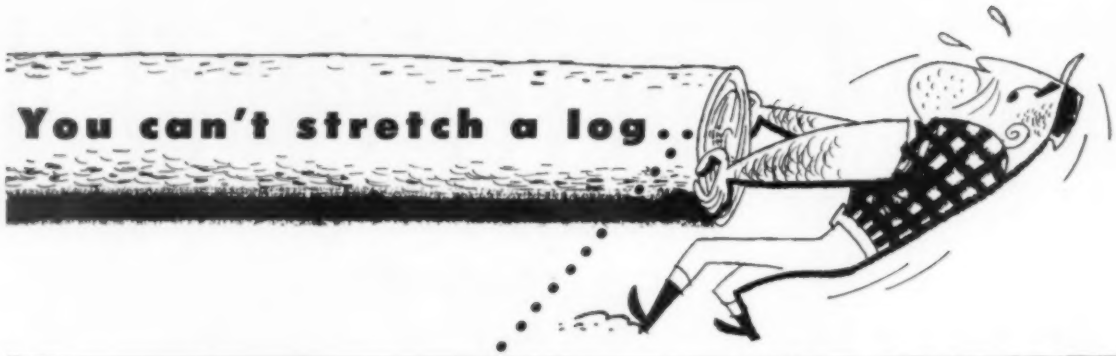
Write today for descriptive literature

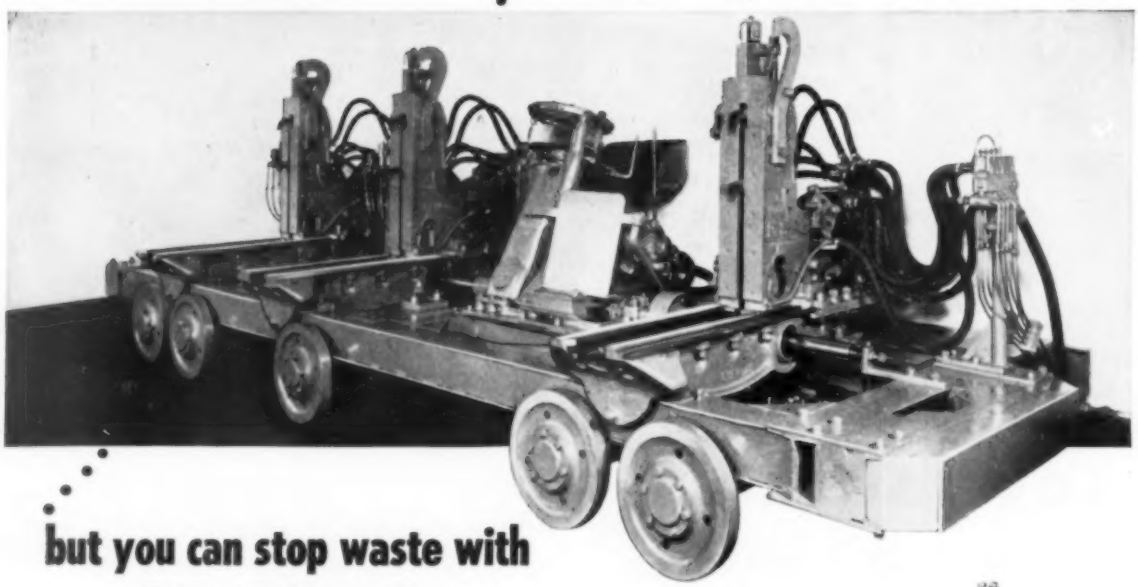
H. B. SMITH MACHINE COMPANY

Smithville, Burlington County, N. J.

Woodworking Machinery Since 1847

"First in Progress — First in Economy — First in Service"

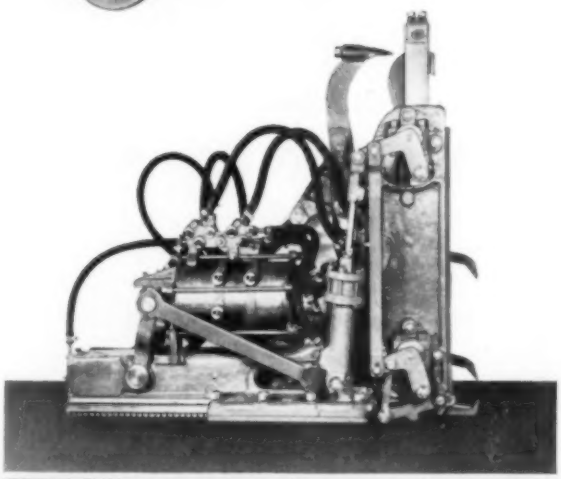




but you can stop waste with Filer & Stowell Air Dog Carriages

PRODUCTION costs drop like magic wherever a new Filer and Stowell air carriage goes into action! It's the most successful carriage available . . . and naturally so, because it's the only carriage designed to meet the increasing needs of the industry. Don't let slow, old-fashioned methods eat up your profits! This new modern Filer & Stowell carriage will pay for itself quickly in *more lumber . . . better lumber . . .* at *lower production costs.*

Find out today how a small investment in a Filer & Stowell carriage will pay big dividends in more profits year after year. Trained saw mill engineers are available at no obligation. Write or wire for complete information.



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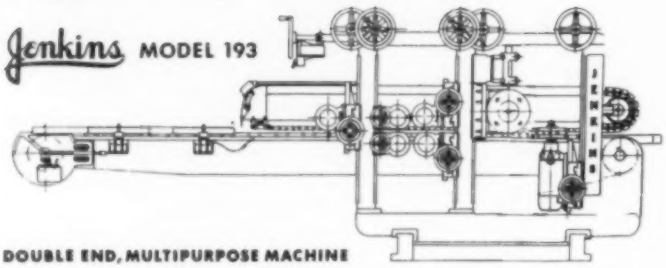
THE NEW 190 SERIES DOUBLE END MACHINE DESIGN BY Jenkins

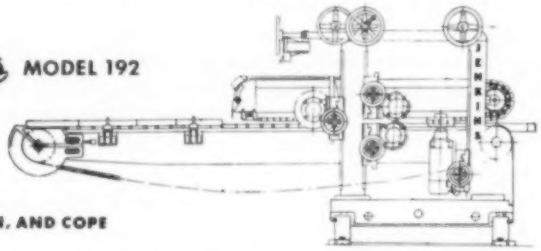
Jenkins MODEL 193



DOUBLE END, MULTIPURPOSE MACHINE

This new 3 stand, 5 station Double End Machine goes far beyond conventional tenoner operations, doing such complex cutting as Multiple Double End Edging, Double Surface Grooving, Texturing, and many others . . . in a single pass, at highest speeds ever attained.

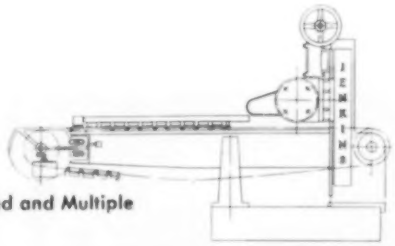
Jenkins MODEL 192



TRIM, TENON, AND COPE

on this new Jenkins Double End Machine. 3 cutting stations on 2 widely spaced, rugged stands, full length ways. 180° Tilting Trims and Copes mean cutting above and below the chain level, and FASTER SETUP. New Vari-Speed Drive provides infinite variations in highest speed ranges.

Jenkins MODEL 191



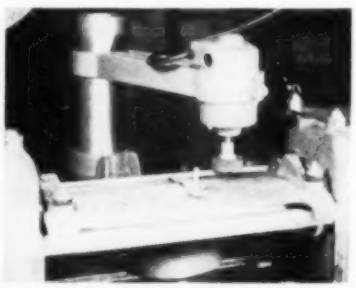
A single stand, single station machine, ideal for Slat Bed and Multiple Chain Operations.

Jenkins WOODWORKING MACHINERY DIVISION
DEPT. WW
of
Curt G. Joa, Inc. SHEBOYGAN FALLS, WISC.

saw kerf results in considerable production gain. Over-run ranges up to 35% over and above that of circular type mills.

Hydraulic Knife Grinders

MFR.: Dependable Machine Co., Inc., Dept. WP, Greensboro, N. C.
DESCRIPTION: Improved Hydro-Travl knife grinders, models NN (32 in.), and NN 480 (48 in.).
FEATURES: Machines now have a solenoid control valve replacing former mechanical reversing mechanism, hardened and precision ground steel ways, and improved wet-grinding attachment to contain the cooler better. Other features of these grinders include: self-adjusting inverted V ways, 3-speed hydraulic drive, quick method of shortening knife stroke and stopping carriage for checking knives without stopping machine, and one knife plate which gives both standard and upside grinding.



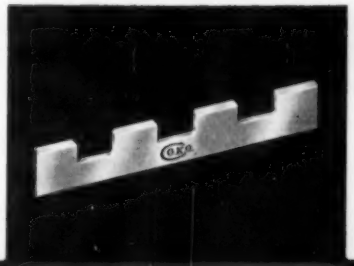
Blade Sharpener Attachment

MFR.: Foster Supplies Co., Dept. WP, 6122 Milwaukee Ave., Chicago, Ill.
DESCRIPTION: New attachment for Foster jointer blade sharpener converting it into planer blade sharpener.
FEATURES: Simple to assemble and operate, sharpener slides on table top, grinding blades perfectly parallel with top without removal of blades.

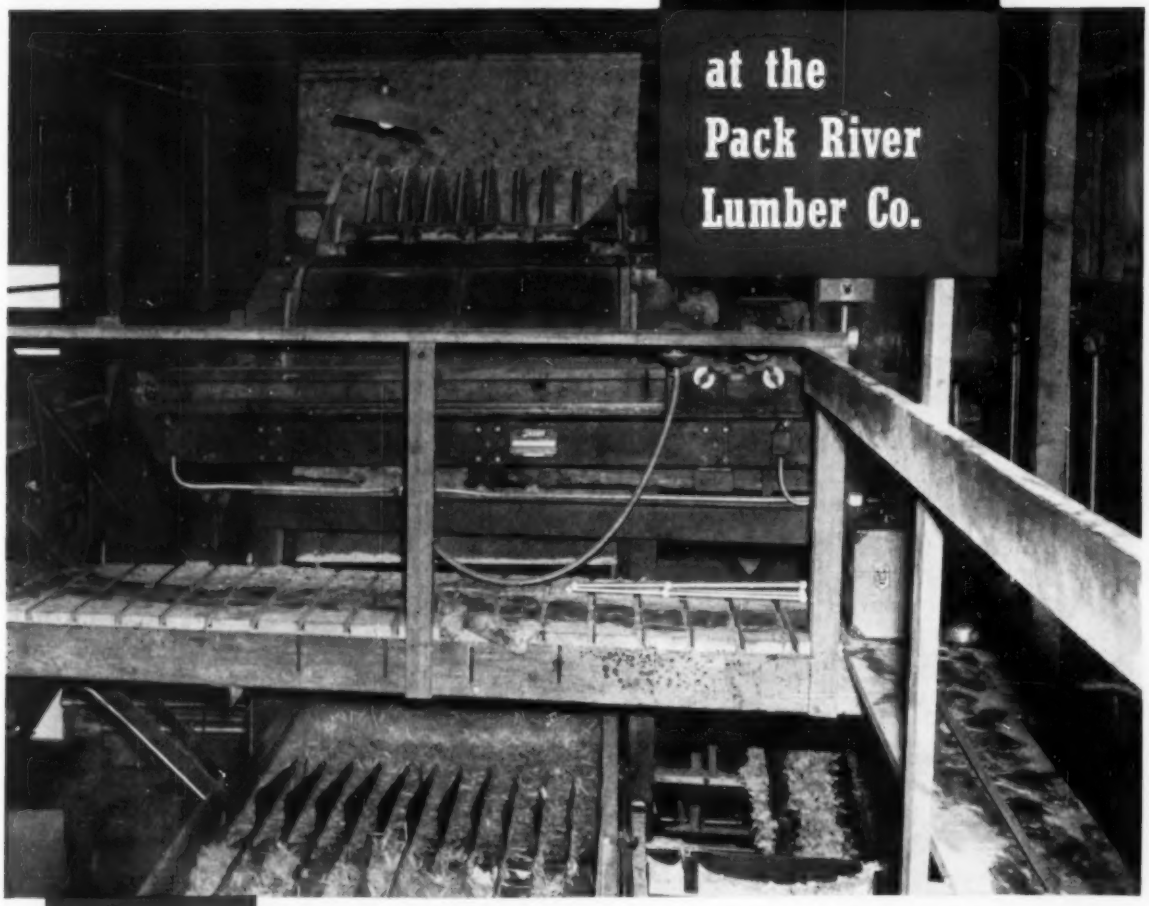
Contact Cement

MFR.: Adhesive Products Corp., Dept. WP, 1660 Boone Ave., New York 60, N. Y.
DESCRIPTION: Prestix, contact cement for use in decorating with fabric, plastic, or leather.
FEATURES: Is a liquid contact adhesive which is brushed onto wood or metal, then allowed to dry 30 minutes

they're chipping with OK chipper knives...



at the Pack River Lumber Co.



the knife

OK Hardened Chipper Knife especially designed for Pack River Lumber Co. waferizer

the installation

4 ft. lengths of debarked wood are fed into waferizer equipped with 48 OK Chipper Knives

The Pack River Lumber Co., Sandpoint, Idaho uses OK Chipper Knives in their waferizing operation. This process takes sawmill slabs, edgings, and trims that formerly went to the burner, and slices them across the grain into thin slices. These slices are eventually processed into TENEX waferboard.

OK Chipper Knives are especially suited for this operation because of their long wearing qualities. Made of special analysis steel, developed for strength and toughness, with high abrasive resistance, they hold their keen, sharp, edges under the most adverse and severe conditions. Their extreme toughness greatly reduces breaking and nicking by foreign materials.

Why not investigate the dollar savings you can achieve in your chipping operation with OK Chipper Knives. They can be made to your specifications.

In addition a complete line of OK Battle Axe Chipper Knives are available to fit all makes of sawmill chippers. Many sizes are stocked at Cincinnati, Ohio and Portland, Ore.

For FREE Bulletin on OK Chipper Knives write today to Dept. 48-MM.

Manufacturers of Chipper Knives.
Hog Knives, Veneer Knives, Planer Knives.

THE OHIO KNIFE CO.

CINCINNATI 23, OHIO

When You Use
STANLEY STEEL STRAPPING
...the percentages are in Your Favor!

This User Reports:

50% Increase in Packing Production
50% Savings in Man Power for the Packing Operation
33⅓% Less Packing Space Required
20% Gain in Storage and Shipping Space
. . . ***AND REDUCED SHIPPING COSTS, TOO!***

"Wood crating was used before strapping and the prohibitive operating and material costs of the crating operation made it impossible to compete price-wise in our market", says Mr. J. Dwight Murphy, Treasurer of the Thomas Graham Co., Inc., Madison, Indiana, manufacturers of hardwood porch and lawn furniture and other fabricated wood products. "Shipping costs, due to crate weight and additional man power required, were exorbitant and would have necessitated an undigestible hike in our prices." SO THEY SWITCHED to the STANLEY STEEL STRAPPING SYSTEM.

NOW, items like the porch glider (shown above) are secured for shipment with Stanley Steel Strapping. CRATING IS ELIMINATED! SHIPPING COSTS REDUCED! *Packing time per glider is just 1½ minutes!*

"Our experience indicates that the Stanley Steel Strapping System gives us everything we must have in a packing operation. We could not possibly get along without it . . . "

Take the first step towards gaining important benefits like these by mailing the coupon below.

STANLEY INSURE IT – SECURE IT WITH STANLEY STEEL STRAPPING

STEEL STRAPPING DIVISION
THE STANLEY WORKS

Stanley Steel Strapping Division, Dept. E, 1223 Lake St., New Britain, Conn.
Telephone: BAldwin 9-2021

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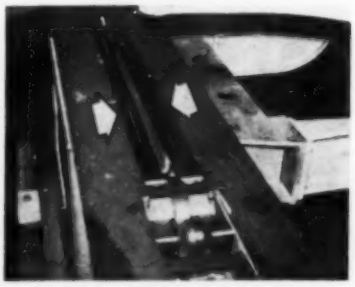
or longer. When dry, decorative plastic, fabric, leather, paper or other materials will bond instantaneously when placed in contact. Useful in decorating lamps, tables, chairs, mirrors, vanities, and other items.

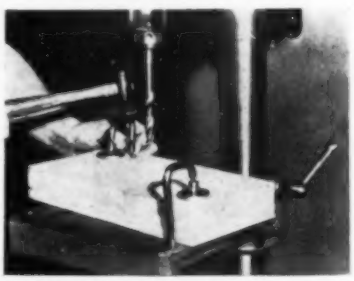


Splicer Table Inserts

MFR.: G. M. Diehl Machine Works, Inc., Dept. WP, Wabash, Ind.
DESCRIPTION: Inserts to reduce cost of table replacement on Diehl veneer splicers.
FEATURES: All new Diehl splicers have improved table with the inserts. New table is machined ⅛ in. deeper and ⅛ in. wider on each side of table where feed chain passes through. Four brass filler strips are inserted. These are grooved for oiling and are pinned by one pin only in front edge of strip, one for each side and two for bottom. Strips can be replaced in approximately one hour when worn, and factory will remachine present tables to use inserts.

Rotary Planer Accessory

MFR.: DeWalt, Inc., Dept. WP-56-5, Lancaster, Pa.
DESCRIPTION: Rotary planer accessory for use with DeWalt radial arm multi-purpose "Power Shop" machines.
FEATURES: Screws directly onto motor shaft and converts machine from basic circular saw to surfacing machine in minutes. When planer is screwed onto arbor, motor is placed into vertical position and with the two knives set to proper depth of cut, irregular lumber whether warped, cupped or otherwise, can then be fed into machine and smoothed.



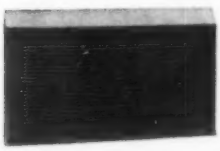
Self-Locking Clamps

MFR.: Delta Power Tool Div., Rockwell Manufacturing Co., Dept. WP, 448 N. Lexington Ave., Pittsburgh 8, Pa.
DESCRIPTION: Self-locking "J-Lock"

CHIPS DISSTON SAYS...

"Be a Sharp Buyer!"

PLANER KNIVES—give maximum performance between sharpenings—due to Disston Metallurgy and the uniformity of heat treatment. Balanced in sets to insure smooth operation, less set-up time.



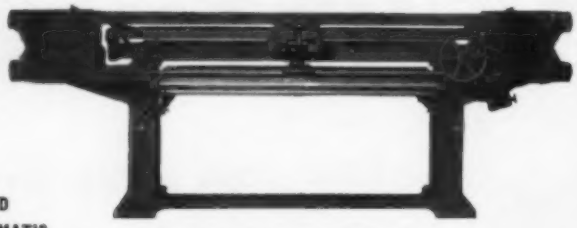
CORRUGATED BACK KNIVES—No distortion or breakage with Disston — corrugations are accurately ground after hardening to eliminate distortion and breakage and to insure that all cutters remain in the same cutting circle.

HIGH SPEED SHAPER STEEL—Generally supplied in 24" bars . . . the most economical multiple of standard length knives. Accurate in width to insure safety where bevel faces engage with collars in operation.

CONTACT YOUR DISSTON DISTRIBUTOR FOR THESE AND OTHER HIGH QUALITY DISSTON MACHINE KNIVES. GET HIS EXPERT ADVICE ON SELECTING THE *RIGHT* KNIFE FOR YOUR APPLICATION.

Henry DISSTON DIVISION
H. K. PORTER COMPANY, INC.
558 Tacony, Philadelphia 35, Pa.

DEMON FOR HIGH PROFITS . . . HIGH PRODUCTION!



- HIGH SPEED
- SEMI-AUTOMATIC
- DUST-PROOF
- REVERSIBLE
- CAPACITY TO 10'8"
- FRICTION-FREE STROKER

MODEL D SINGLE-BELT SANDER

Year-in and year-out shop use continues to prove the high efficiency of Oakley quality sanding machines. Operators and owners alike depend on Oakley for the sanders and the "know-how" to get the job done . . . profitably!

MODEL D-1 SANDER & POLISHER

Positive superior quality!
Stock is ready for finishing room with a single handling! The D-1 is also reversible with double belt. Without sponging or glue sizing, it removes tape, polishes and eliminates raised grain.

WRITE FOR COMPLETE DETAILS TODAY!

The Oakley Co. SINCE 1934 — BRISTOL TENNESSEE

THE SAVONLINNA MILLS
IN FINLAND, PART OF
THE EXTENSIVE PLYWOOD OPERATIONS
OF OY. WILH. SCHAUMAN AB

ALL-BIRCH PLYWOOD

From the world-famous forest resources of Finland, imported all-birch plywood — sizes up to 4' x 6', all thicknesses . . . cut to size to buyer's specifications.

All-birch ¼" 13-ply or 15-ply laminates for cabinet doors, table tops, etc.; lumber core for table tops; door panels of birch plywood (⅛" 3-ply).

Also standard hardboard, ⅛" and 3/16" thickness, with outstanding physical properties.

Dependable deliveries from Finland's largest and oldest plywood source. Quotations submitted — your inquiries invited.

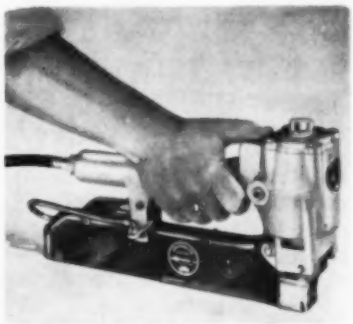
FINWOOD
INDUSTRIES • Ramsey, N. J.

workholding clamps designed primarily for use with drill press.

FEATURES: Simple, inexpensive, and easy to use. Designed to hold material up to 2⅛ in. thick, clamps are useful for holding in place long work pieces laid diagonally across work table. Clamps are inserted in holes drilled at both ends of table with long leg of inverted "J" entering the hole at an angle and the short leg pinning work to table. When bottom of "J" is tapped with hammer, spring action holds clamp tightly in position.

Small Air Compressor

MFR.: The DeVilbiss Co., Dept. WP, 300 Phillips Ave., Toledo 1, Ohio.
DESCRIPTION: 1/3 hp. air compressor, UEH-5021, for use in air dusting, cleaning and drying, touch-up spray painting, and small pneumatic tools.
FEATURES: Complete unit consists of compressor, electric motor and air tank. Will operate from ordinary light circuit. Is fully automatic, starting when pressure drops to 120 lbs. and stopping when tank is full at 150 lbs. Is cool running, lubricates automatically, and has air intake filter, and valves can be inspected or cleaned without removing cylinder head.

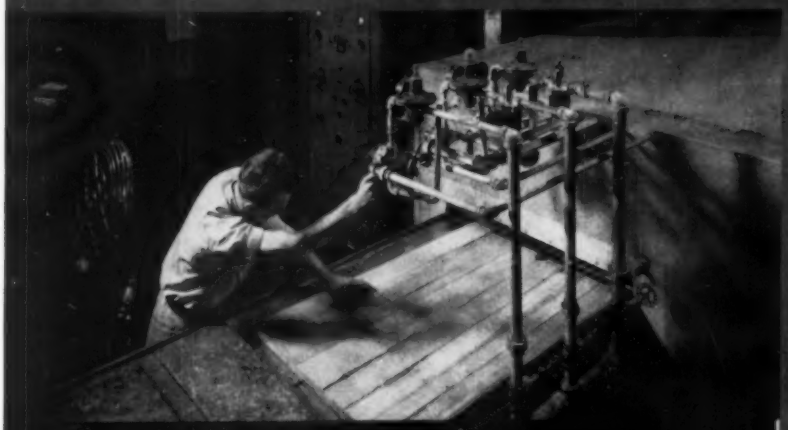


Air-Drive Fastener

MFR.: Spotnails, Inc., Dept. WP, Evanston 27, Ill.
DESCRIPTION: Air-driven Spotnailer for one-hand fastening.
FEATURES: Model M pneumatic attachment on standard mallet-drive Spotnailers makes it particularly useful for applying hardboard or plywood paneling, sidewall sheathing, lath and other materials which require

CATALIN

offers a complete range of UREA, PHENOLIC, RESORCINOL ADHESIVES and necessary ACCELERATORS



The initial quality of a glue joint and its durability under expected service conditions are important considerations when selecting a wood adhesive! Too, the right bond must also incorporate fast cures, easy clean-up and be adaptable to existing production equipment. Last but by no means least, the adhesive must also be low in cost!

Catalin, with the longest record of achievement in the development of resins for the woodworking industry, offers a complete standard line of ACCELERATORS for use with the Company's full range of ADHESIVES (urea, phenolic and resorcinol). Together, these readily blended, fast curing resins answer most plant production techniques and product specifications for hot and cold press, long assembly time operations and RF heating. Special formulations to meet individual requirements are also available.

Whether standard or specially formulated, these quality-products are *gilt-edge* bonds—the entire industry places a high, *above par* value upon their resistance to water, fungus and crazing . . . and their ability to serve both civilian and military applications.

Catalin welcomes the opportunity to suggest and submit new, improved formulations for your particular wood production problem. Inquiries invited!

FOR FAST DELIVERIES . . . *Catalin maintains three strategically located resin plants . . .*

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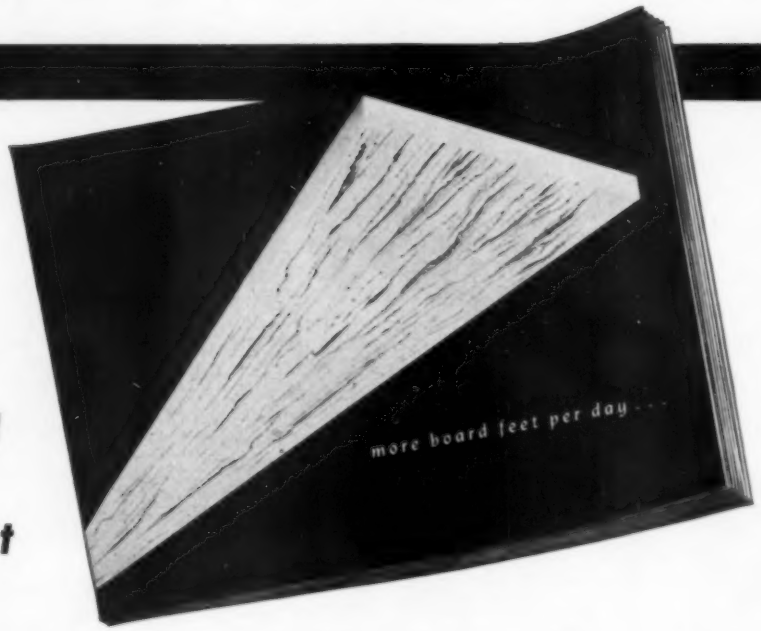
cut costs and increase earnings with

PORTER METHOD ROUGH MILL



here's your guide to reduced costs with conveyorizing that fits any woodworking plant

PORTER pioneering

C. O. Porter Machinery Company, serving the woodworking industry over 65 years, has pioneered in Rough Mill Systems that pay for themselves in economies effected by their installation.

PORTER engineering

Every line is custom-engineered to fit each particular Rough Mill application, utilizing the flexibility and versatility of "PORTER METHOD" Systems. The floor plan of the area allotted for your rough mill operation, plus the machines available, are all that PORTER needs to make a proposed layout. There is no obligation.

PORTER construction

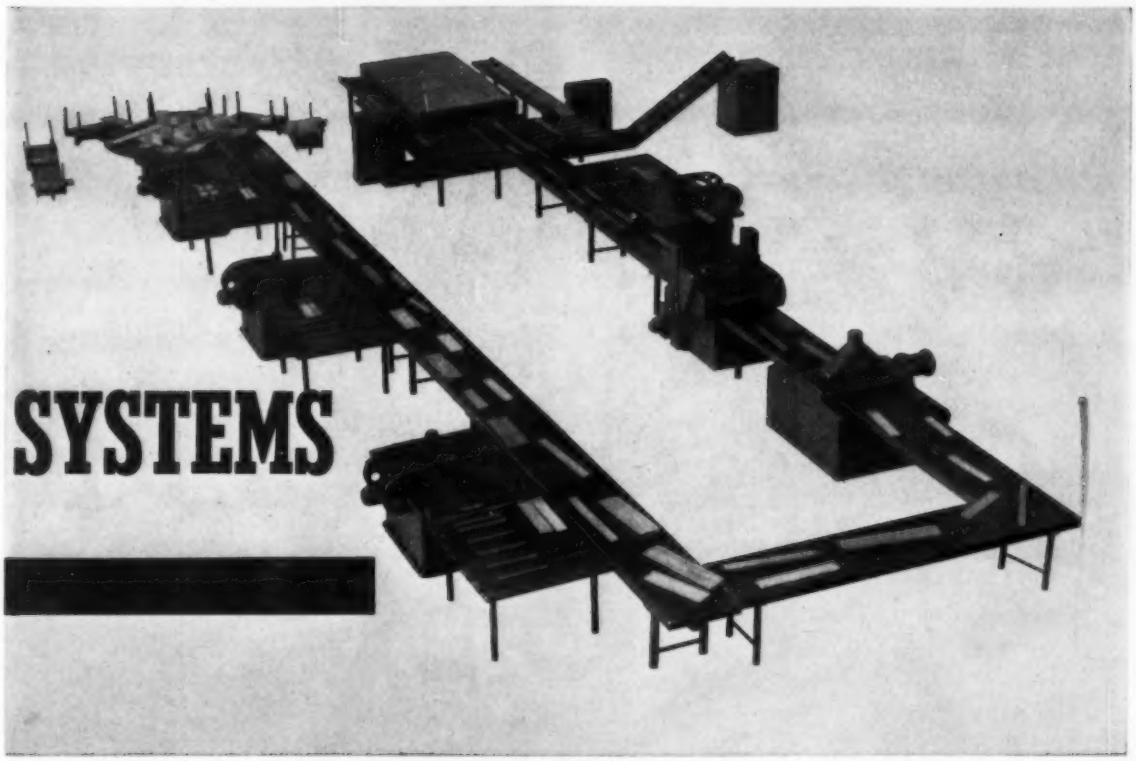
PORTER SYSTEMS are rugged in construction, with more than ample strength built in for the work they have to do. Formed channels are 3/16" steel; belt plates are 12-gauge steel; conveyor legs are 2" steel pipe — adjustable for height. Belts are top quality material. Drive rolls operate on precision ball bearings. Variable speed drive makes them easily adjustable to other operations in the conveyor line. Motors are equipped with overload relays and disconnect switch for protection of operator and motor.

PORTER service

PORTER conveyors move stock efficiently and economically between your machines, eliminating confusion and congested areas, for the maximum output. A PORTER engineer will visit your plant to discuss and study your lumber handling and processing problems. Your PORTER engineer is your constant consultant.

PORTER savings

Man-hours saved with the PORTER METHOD and equipment for Rough Mill operations are of primary interest to production-minded executives . . . the new PORTER Catalog "More Board Feet Per Day" tells you the story of these savings and the equipment.



and here's a typical set-up that frees nine out of sixteen men in a rough mill operation!

This PORTER METHOD Rough Mill set-up conveyorizes corners to save space, and frees nine out of sixteen men for other work. This is a savings for you of 72-man hours per 8-hour day.

Management's problem today is to reduce production costs. PORTER Systems are saving wood working plants thousands of dollars each year. Because overhead costs are fixed, the only way to effect a savings is by increasing production and lessening manpower. PORTER conveyorizing provides the answer. When you compare the footage to the man-hours required by the PORTER METHOD against the footage to the man-hours required with ordinary methods, you will discover how much more production with less man hours of labor you can gain, and how the total savings will more than pay for the cost of PORTER METHOD equipment. This will give you a better profit from your rough mill operation than ever before realized.

Send this coupon today for your copy of "More Board Feet Per Day"

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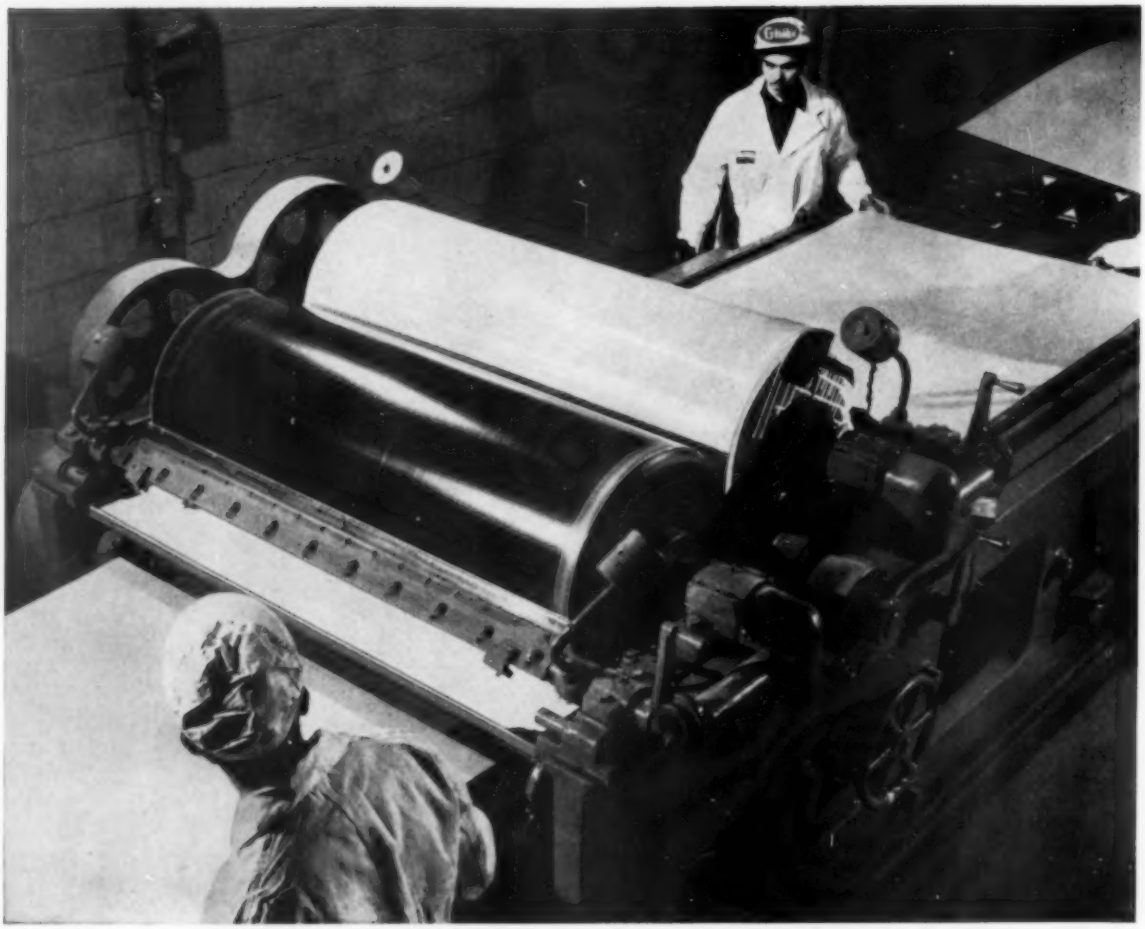

LUSTREWOOD BEATS NATURE AT HER OWN GAME...

Giant machines, like these at the new Lustrewood Process plant, Milford, Conn., quickly simulate fine wood grains, rivaling nature's finest. New applications and uses, however, continue to increase demand for these precisely grained, pre-finished hardboard panels.

To keep pace, Lustrewood asked Glidden Technical Service for a revised finish schedule that would speed production. Extensive testing in Glidden laboratories and on the Lustrewood line produced a coating that performs both the sealer and base coat functions in one operation . . . reducing costs while increasing production.

Many difficult finishing problems have been similarly solved with Glidden custom-formulated finishes. If you're stymied by a coating application or the installation of a new line, write for information on Glidden services and complete specification data on all Glidden product finishes.

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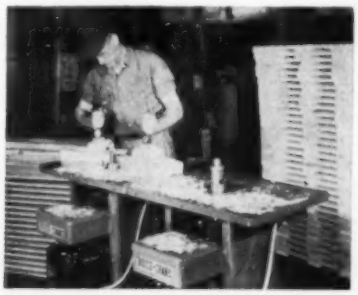
holding in position while nailing. Capable of driving variety of fasteners including heavy gauge staples and sash pins up to 1¼ in. long, has no recoil or bounce, and may be operated at arms' length without pressure on work. Operated by conveniently located pushbutton. Requires little air pressure and magazine holds up to 200 fasteners.

Dehydrator

MFR.: Arnold Dryer Co., Div. of Heil Co., Dept. WP-36, 3000 W. Montana St., Milwaukee 1, Wis.

DESCRIPTION: Three-stage dryer, Ardrier Dehydrator.

FEATURES: Consists of three drums built into one compact unit which rotates at regulated speed. Compound flights on both surfaces of inner and intermediate drums continuously pick up material from bottom and drop it into hot air stream. Light material is sucked through drums immediately. Heavier materials move more slowly for uniform drying. Is compact, has low fuel consumption per ton of water evaporated, has quick warm-up, and dries uniformly to around 8% moisture content.



Right and Left Hand Shapers

MFR.: Boice-Crane Co., Dept. WP, 929 W. Central Ave., Toledo 6, Ohio.

DESCRIPTION: Shapers for right and left hand operations.

FEATURES: Used in pairs to achieve dual operation particularly when reversed spindle rotation is necessary for working with the grain or in best direction with unusual grains. Spindle is invertible for the use of large or small cutters.

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Handy 5½" x 8½" pocket size • durable cover • fully indexed • 100 pages • 150 problems • 46 drawings • 24 photos • 8 tables

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It's no trick to cut costs and boost quality *with these* 4 Weldwood Wizards!

1 Cuts cost of surfacing with laminates. *Weldwood Contact Cement* saves valuable production time in applying Micarta and other laminates. Bonds instantly, permanently on *contact*—eliminates clamps, presses, processing, special tools. Saves labor too—no special skills required.

2 Prevents costly glue failures. Joints glued with *Weldwood Plastic Resin Glue* are actually stronger than the wood itself. No delayed failures—no creeping due to moisture or heat. Used by the finest woodworking craftsmen. Highly water-resistant. Stain-proof, rot-proof, bacteria-proof.

3 Waterproofs glued joints for outdoor use. For any job exposed to the elements, *Weldwood Waterproof Resorcinol Glue* grips like a vise in any climate or weather. 100% proof against boiling hot water, cold water, salt water, moisture, dampness, steam, mold, fungus, mild acids, alkalies. Easy to mix and apply. Stores indefinitely.

4 Speeds production because it sets faster. *Weldwood Presto-Set® Glue* is so fast-setting you can machine soft woods 20 to 30 minutes after gluing (hard woods take somewhat longer). Bonds reach full permanent strength in 24 hours. Pure white—clean and easy to work with. No mixing, dilution, heat or processing; no special containers or applicators. Freeze and thaw-proof.

Save your valuable storage space. By using Weldwood Glues, you need carry only a small inventory. Our warehouses, and mill supply and industrial distributors from coast to coast, quickly supply your needs. Sizes: Weldwood Contact Cement—1 and 5 gal.; Weldwood Plastic Resin Glue—10 and 25 lb. cans, 100 and 300 lb. drums; Weldwood Waterproof Resorcinol Glue—1 gallon, 5 gallon, 30 and 55 gallon drums; Weldwood Presto-Set Glue—1 gal. jars and 5, 10, 30 and 55 gal. drums.

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- ☐ Weldwood Waterproof Resorcinol Glue
- ☐ Weldwood Presto-Set Glue

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NEW CATALOGS and LITERATURE

Wood Treating Data. Chapman Chemical Co., Dept. WP, 707 Dermon Bldg., Memphis 3, Tenn. Technical Newsletter No. 16, "Charts Covering Constants and Conversion Factors for Penta-Petroleum Calculations" is designed to be of help to operating personnel at treating plants and to those charged with responsibility of determining accurate costs of penta treatment.

Government Adhesives Specifications. Minnesota Mining & Mfg. Co., Adhesives & Coatings Div., Dept. WP, 423 Piquette Ave., Detroit 2, Mich. Handy 14-page, file-type, 8 x 3½ in. booklet lists official U. S. Government Specifications for a wide variety of adhesives, coatings, and sealers. Also contains cross reference section covering recent specification changes.

Shredders, Wood Hogs. Jeffrey Mfg. Co., Dept. WP, Columbus 16, Ohio. 48-page catalog No. 855 on Jeffrey's complete line of swing hammer shredders and wood hogs, contains detailed information and illustrations on each type of hog and shredder, and includes diagrams and pictures of actual installations.

WALKER-TURNER

Looking for BIG machine performance at a "light machine" price? Here it is . . .

This rugged 10" Tilting Arbor Saw is ready for anything. In fact, this "Light-Heavyweight" has become famous throughout the country in large and small industries, pattern shops, woodworking shops — and in vocational training departments of schools. It cuts production time and costs just as efficiently as it cuts wood, plastics or metals.

Specifications: Capacity — cuts 3⅛" deep with 10" blade; 2½" at 45°; 1⅛" with 6" dado . . . Table is 45¾" wide and 32½" deep, with extensions . . . Rip fence is so accurate you don't have to waste time on test cuts; single lever locks front and rear; spring loaded pins assure automatic squaring . . . Available with 1 hp single phase, or 3-phase motor.

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Resin Adhesive. Armour & Co., Adhesive Div., Dept WP, 1355 W. 31st St., Chicago 9, Ill. Bulletins E-5001, E-5002, E-5008, and E-5007 cover various types of Timbond resin adhesive (polyvinyl acetate emulsion base), respectively: 600-1 for low density woods, 600-2 for low and medium density woods, 600-3, an all-purpose adhesive, and 600-5, a quick drying, fast-setting adhesive. Each bulletin identifies species for which adhesive is designed, and gives complete information on storage, application, and curing.

4-Side Moulder, Matcher. J. A. Fay & Egan, Dept. WP, 2026 Eastern Ave., Cincinnati 2, O. Bulletin on model 969 ball-bearing, four-side planer, matcher, and moulder describes principal features and advantages, with pictures and specifications.

Chipboard Processes. Reference booklet, "Chipboard from Wood Waste," contains flow charts, operating photos, and technical details of various installations which process chipboard and particle board. Available from WOOD & WOOD PRODUCTS, 139 N. Clark St., Chicago 3, Ill., at $1.00 per copy or at quantity discounts.

Machine Tool Catalog. Walker-Turner Div., Kearney & Trecker Corp., Plainfield, N. J. 32-page, pocket-size catalog contains illustrations and complete descriptions of company's entire line of "Light-Heavyweight" machine tools.

Kiln Equipment. Standard Dry Kiln Co., Dept. WP, P. O. Box 5708, Indianapolis 21, Ind. Equipment catalog covers all types of kilns and equipment offered by the company, with pictures, diagrams, and descriptions.

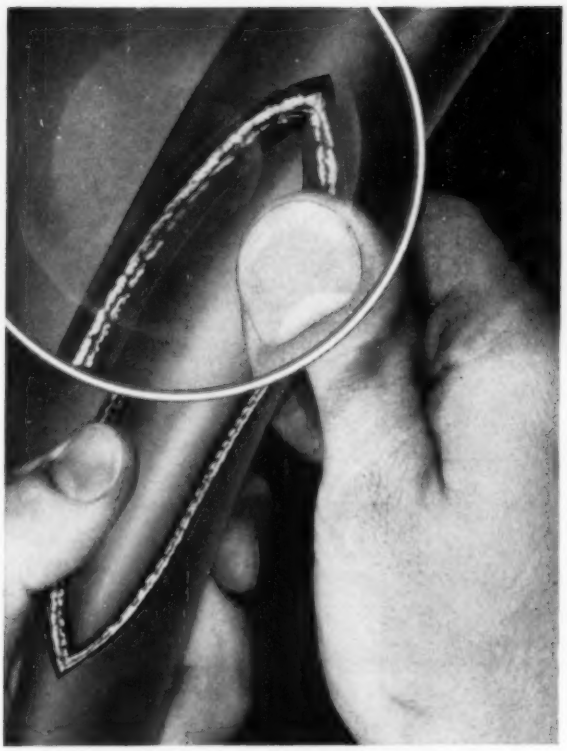
Automatic Staple Tackers. Fastener Corp., Dept. WP, 860 Fletcher Ave., Chicago 14, Ill. Catalog features complete line of Duo-Fast automatic tackers, staplers, and staples, and contains descriptions of their many uses, with supplementary illustrations and specifications.

Carbide Tipped Saw. Victory Carbide Saw & Tool Co., Dept. WP, 3856 N. Ashland Ave., Chicago 13, Ill. Bulletin announcing new BT 45 carbide-tipped saw for all hand-feed and radial arm saw operations, which cuts thin kerf.

Band Saws. Northfield Foundry & Machine Co., Dept. WP, Northfield, Minn. Bulletin includes specifications, pictures, and detailed descriptions of re-designed band saws in sizes 20 in., 27 in., 32 in., and 36 in.

Wedge-Bed Planers. The Enterprise Co., Dept. WP, Columbiana, Ohio. Bulletin No. 210 illustrates and describes all principal parts and features of Crescent 30 and 36 in. wedge-bed planers, P-30 and P-36, and includes diagrams and specifications.

Ordinary hose, with rubber-composition liner, soon deteriorates from active solvents present in all paint materials.



DeVilbiss synthetic-compound liner lasts indefinitely, because it is specially formulated to withstand all solvents.

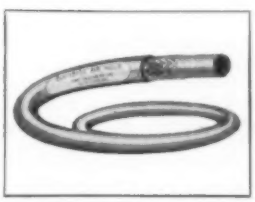
DeVilbiss-made paint hose resists solvent action longer

"Torture" tests, the most conclusive known for solvent-hose analysis, prove the superiority of DeVilbiss hose.

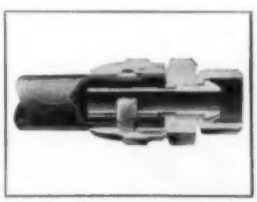
Fluid liners from DeVilbiss and other brands of paint hose, when exposed to the prolonged solvent action of common paint thinners, tell the story. The DeVilbiss liner shows no sign of deterioration, while others show marked changes from the effects of turpentine, acetones, ketones, acetates, toluol and other hydro-carbons – proof that DeVilbiss hose outlasts other makes in operations where paints are conveyed.

This laboratory evidence is your assurance of longer protection against hose-liner disintegration, swelling, and plugging – against paint contamination and discoloration!

Next time you order, specify DeVilbiss-made hose. Not only does it resist solvent action better, but also it is manufactured to closer dimensional tolerances . . . and is produced in a specialized DeVilbiss Rubber Plant, where the requirements of quality hose for spray painting have been a scientific study for over 40 years.



DeVilbiss' new oil-resistant air hose is specially compounded for long-lasting service with air tools that require lubrication through the air stream.



DeVilbiss hose connections fit all common sizes of all types of air and fluid hose; provide a smooth, tight-grip, leakproof connection; are reusable.

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F.P.R.S. Meeting

(Continued from Page 52)

Wednesday, June 6

Session IX—Machining of Composition Board 9:00 a.m.

"Sanding Particle Board to Thickness'—David Haile, Rock Island Millwork Co.; "The Effect of Boring Speed and Feed Rate on the Strength of Glued Dowel Joints in Tension"—R. J. Hoyle, Jr., College of Forestry, Syracuse University; "Analysis of Lumber Planing Process, Part II" — Peter Koch, Michigan State University; "Greater Utilization of Material"—W. K. Murphy, Ohio Agricultural Experiment Station.

Session X—More Complete Utilization in Logging and Milling 9:00 a.m.

"Chip Yield on Log Grade and Size in the California Pine and Fir Region"— T. Shelton, Diamond Match Co.; "Reducing Sawmill Waste 90% in Six Years"—E. P. Ivory, Ivory Pine Co.; "The Future of Rubber-Tired Tractors in Logging"—W. E. McCraw, Caterpillar Tractor Co.; "Logging Injury in Central States Upland Hardwoods"—D. P. Herrick, Central States Forest Experiment Station; "Genetic Growth and Environmental Factors Affecting Wood Specific Gravity of Loblolly Pine"—Dr. Bruce Zobel, Texas Forest Service; "Development of an Automatic Sawmill Carriage Feed"—M. H. Mater, Mater Engineering Co.

Thursday, June 7

Session XI — Composition Boards — What the User Wants 9:00 a.m.

"Properties of Composition Board in Relation to Their Use in Furniture Manufacture"—E. S. Johnson, A. Carlyle, L. McGee and R. McLean, North Carolina State College; "The Use of Composition Boards and other Wood Base Materials in Mass Home Building"—W. J. Worth, National Homes Corp.; "Composition Board Has Found Its Place in the Furniture Industry"—R. H. Yale, Poinsett Lumber and Manufacturing Co.; "Insulation Roof Decking—A New Structural Material"—A. T. Walton, Simpson Logging Co.

Session XII—How to Select a Better Finish for Furniture 9:00 a.m.

"New Approaches in Wood Finishing"—A. J. Kirsch, American Cyanamid Corp.; "Discoloration of Furniture Finishes"—Donald Lubeck, Hammond Organ Co.; "Evaluating Cold Check Resistance of Furniture Finishes"—Roy Carter and Mr. Schrumpf, North Carolina State College; "Synthetics vs. Nitro-Cellulose Lacquers"—W. M. Beaver, Marietta Paint & Color Co.; "Infra Red Drying of Wood Finishes"—I. J. Barber, Fostoria Pressed Steel Co.

Session XXIII—Packaging and Shipment of Furniture 2:00 p.m.

"Cushioning Materials for the Protection of Furniture"—John Hoffman, Kimberly-Clark Corp.; "Packaging and Shipment of Furniture by Rail Shipment"—J. C. Anderson, Southern Weighing and Inspection Bureau; "Furniture Manufacturers' Viewpoint on Protection of Furniture for Shipment"—S. Freeman, Drexel Furniture Co.; "Fiberboard Furniture Packages"—J. D. Evans, Mengel Co.; Discussion: "Long-Range Outlook at FPRS Packaging Interests" — K. W. Kruger.

SessionXIV—Improved Plywood Products Through Technology 2:00 p.m.

"The Care and Maintenance of Veneer Knives"—N. Bowditch, Simonds Saw & Steel Co.; "Engineering Design of a Veneer and Plywood Plant"—E. H. Merritt, Lockport, N.Y.; "Maintenance of Quality in the Manufacture of Molded Plywood"—R. A. McKay, Brunswick - Balke - Collender Co.; "Investigating Rotary Veneer Cutting With the Aid of a Tension Test"—Dr. Eero Kivimaa, The State Institute for Technical Research, Helsinki, Finland.

"WOOD" Awards to be Given At F.P.R.S. Official Luncheon

JUST BEFORE the entry closing date, April 15, of the annual "WOOD" Award competition for the most outstanding two graduate papers dealing with forest products research, five schools have indicated that they may enter a total of seven papers. Among the tentative titles are "Method of Determining Drying Schedules for Veneer," and "Chemical Stabilization of Wood".

The schools whose forestry department heads have selected eligible papers are: North Carolina State College, Laval University, University of Michigan, University of Minnesota, and Yale University. The first place winner will receive $350 with certificate, and second place winner will receive $150 with certificate, to be presented at the F.P.R.S. 10th annual meeting, during the official luncheon on June 5. The awards are sponsored by Vance Publishing Corp., publisher of WOOD & WOOD PRODUCTS.

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HAND JOINTER

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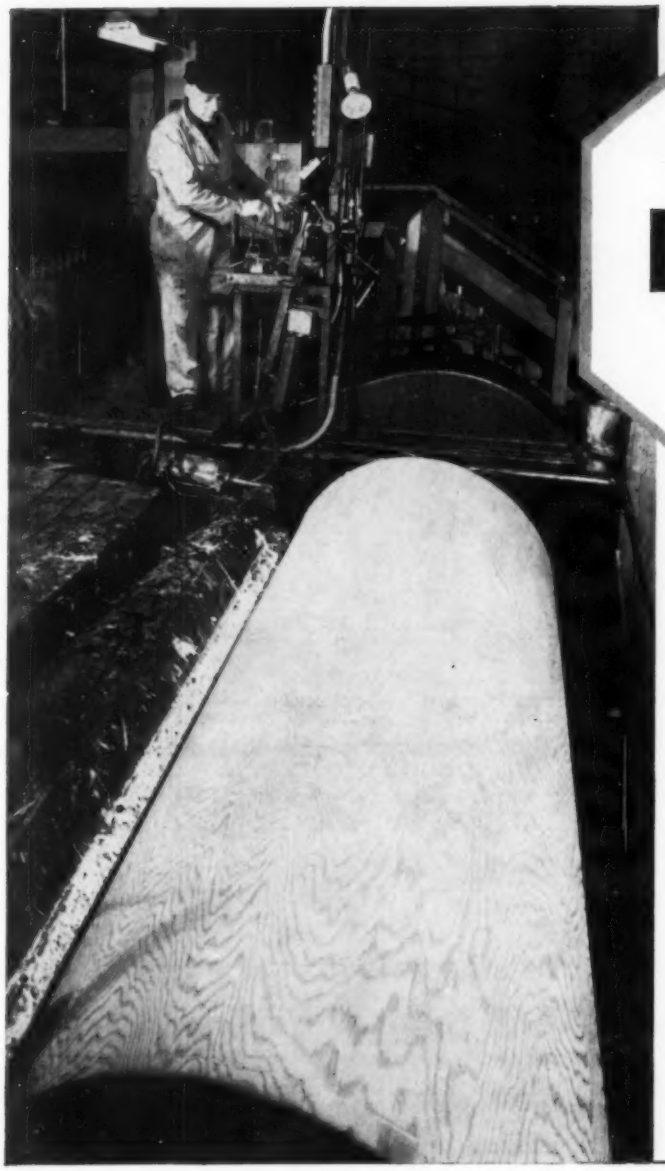


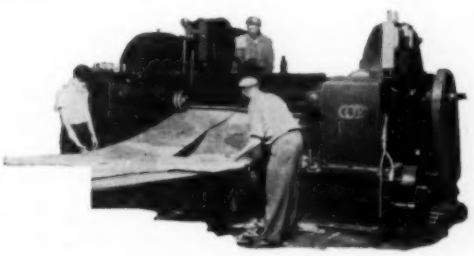
No DETOUR Here

No Detour Here, just smooth sailing right down the center of the highway. With hydraulically operated controls at his finger tips this man breezes through millions of feet of veneer each week. Stretched out in a continuous ribbon, the annual output of this Coe lathe would seem to stretch "from here to eternity."

Good, sound sheets in tremendous quantities are needed to keep up with the ever growing demand for plywood in all forms. Consumption of plywood, which now exceeds 20,000,000,000 square feet annually, is increasing by at least 3 billion feet every 5 years.

Whether your need is for a large lathe or a small one; to cut veneer for softwood or hardwood panels, fine furniture stock or single-ply container material, there is a Coe lathe to do the job.

Call your nearest Coe representative to familiarize yourself with our latest developments. Should you need his address or phone number, contact our main office.



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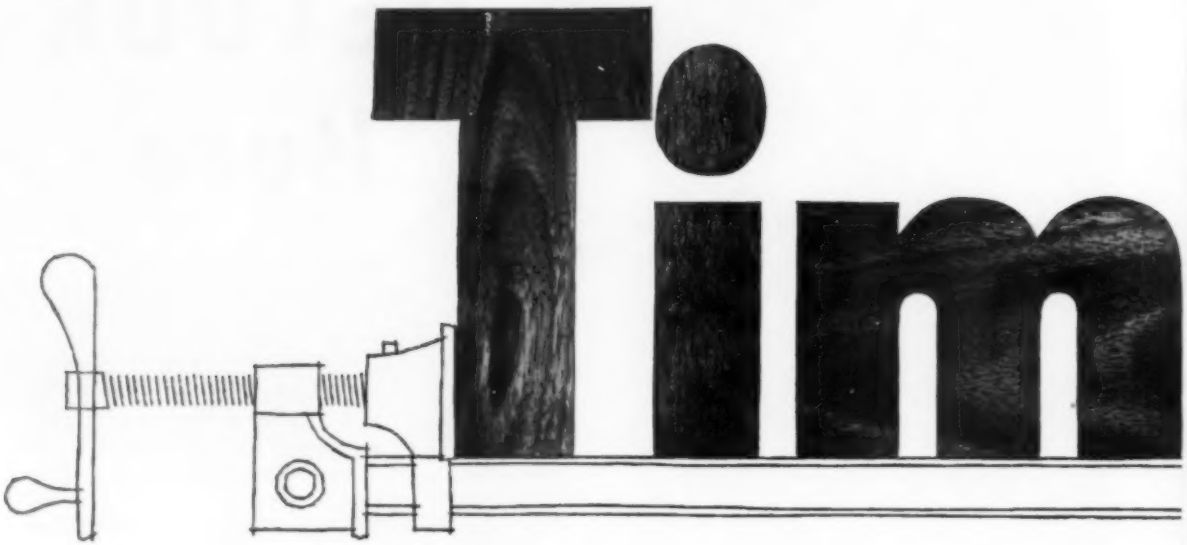

Armour's revolutionary new line of polyvinyl resin adhesives

No longer do you have to guess which glue is right for the wood you use. Now Armour's new TIMBOND line of adhesives, *density-keyed to 40 kinds of wood*, solve that problem for you!

That's because TIMBOND adhesives are scientifically formulated in Armour research laboratories to vary in strength according to the densities of different species of wood. So you're assured of maximum adhesive performance for every kind of wood you use, and since a TIMBOND adhesive takes the place of several different types of glue—you save money!

This versatile new line of TIMBOND adhesives produce bonds of superior strength and shock resistances equal to or greater than the strength of most woods. They dry quickly, are odorless, mold-proof, vermin-proof, water-resistant, light-colored. No diluting or heating is necessary—they're supplied ready to use! Application can be made by roller, glue gun or brush.

Mail coupon and designate the wood or woods you use. Do it today and we will promptly send you product and ordering data on the TIMBOND adhesive density-keyed to your woods.

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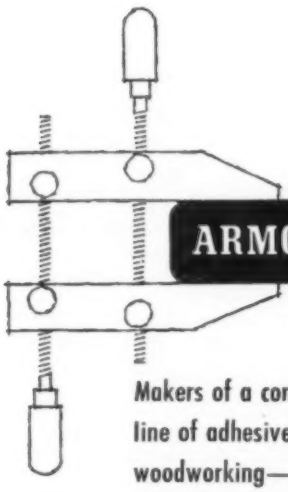

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5

DESIGN COMMITTEE

Continued from Page 32

or a nailed box together with whatever interior supports, inner pack or packing may be needed.

Whether it be a new product that needs a package or a product whose package has allowed it to be damaged in shipping—thus necessitating redesigning; whether it be easily chipped sanitary ware or large mechanical equipment, or a special-purpose collapsible nailed box that is needed, the problem goes before a special design committee.

Sometimes the redesigning is undertaken to reduce weight, to decrease the size of the package, to increase protective covering, or to use less materials. But whatever the objective, simplifying methods of manufacture and use of mass production facilities must be borne in mind.

Chairman of American Box Co.'s design committee is John P. Kubes, Jr., vice-president in charge of design, whose father, John P. Kubes, Sr., founded the firm in 1901. He is a brother of George H. Kubes, president, and Harry S. Kubes, executive vice-president and general manager. Other members are W. A. Eger, Carl Burger, and Paul Gamble. The entire sales staff, headed by A. R. Caputo, general sales manager—an accomplished container designer in his own right—are all graduate wirebound container engineers.

As soon as a package has been agreed upon for a specific product, a pilot model is built and the product placed therein. Then comes a "torture program" of tests that induce all stresses and strains the package will encounter in ordinary shipping—and then some. Among them are an incline test which involves rolling the package down a steep ramp to bash against a barricade at the bottom, drop tests, a vibration test, a crush test and a tumbling test.

If the package fails, the cause of failure is determined and the box redesigned and retested until it is pronounced satisfactory by the committee.

"Many times, success is the result of just hanging on—testing, redesigning, retesting—until finally a package evolves that furnishes the required protection and economy," says W. A. Eger, assistant sales manager.

But while designing a package that will offer maximum protection and economy is one thing, designing it in terms of being able to produce it on the time and labor saving machinery in the American Box Co. plant is another. For it is these machines and equipment and the savings they afford that enable the 200 employees at the Cleveland plant (as well as the additional 100 employees at Marion, S. C., where the company operates its own tree farm) to offer maximum production at competitive prices.

Lumber entering the plant first passes through twin resaws, then through planers and a battery of power saws that trim the box lumber to sizes required. Further on, other labor-saving machines tongue-and-groove and mitre wood cleats.

Stapling machines secure sections of wirebound boxes, corner joints to panels, and panels to cleats. Stitchers fasten battens to ends, faceboards to cleats and corner joints. Battens are nailed to ends for wooden boxes with automatic nailers. All lumber and assemblies for greatest safety, convenience and time-saving are palletized and moved by lift truck. It's a high-speed, yet precise operation throughout.

Once the committee has approved a package, drawings with dimensions and specifications are made. After the initial order of containers is produced, the blueprints – which remain the property of American Box Co. – are permanently filed. In case of re-order, a clerk in the sales department merely removes the drawings and specifications from the file and the new order is put into production immediately.

*Reg. U. S. Pat. Off.

Mr. Charles Harden of Frank S. Harden Co., McConnellsville, N. Y., where the Taylor Panel-Mint was photographed says: "The edge-glued joints on our Maple and Cherry seats are practically invisible, with rejects and gluing costs reduced to an all-time low. We are very happy with our purchase of the Taylor Steam-heated PANEL-MINT Edge Gluing Machine."

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WAFERBOARD

Continued from Page 29

upward until 12 "sandwiches" are in place. A ram moves the entire load into the receiving rack. A press loading ram then moves the mats into the press, discharging 12 completed boards in the same process.

During the long months of test running and "de-bugging" the process, the new press proved less worrisome than any other piece of new and untried equipment, report the Pack River people. Designed by the firm's own engineers, the end-opening, steam-heated, 4 x 16 ft. press was built by A. O. Smith Corp. in Milwaukee and tested there. It achieved the goal of substantially reducing capital cost of a press without sacrifice of good performance. Its record thus far has been one of continuous, trouble-free operation.

Unlike conventional presses, the unit has a huge piston the same size as the boards—4 x 16 ft.—operated by water. Water use is no problem, since the plant is located on the shores of Lake Pend Oreille, one of the largest in the nation.

Advantages of the unconventional press as reported by Pack River officials are: (1) Pressure is applied uniformly over the entire area of the board; (2) uniformity of pressure is not disturbed by structural or temperature strains; (3) pressure of the actuating fluid (water with anti-rust and lubricants added) is little more than the pressure applied to the board, reducing the cost of pumps, piping and control valves; and (4) nearly every ounce of steel in the press bears its full working load in tension when in operation.

The press's weight is much less than that of the conventional press and no special foundations are required other than those for the discharge and accumulator tanks beneath it.

In pressing the boards, the first water pressure is supplied by a low pressure tank partly filled with water under air pressure. The press closes rapidly with this pressure at 50 p.s.i.g. through a 12-in. pipe.

As soon as the press reaches 500 p.s.i.g., low pressure is cut off, the high pressure tank, designed for 600 p.s.i.g., cuts in, and the predetermined pressure desired on the platens is obtained almost immediately.

Platens are heated by steam from the same boiler plant that supplies Pack River's planing mill dry kilns. It is admitted at both ends of the platens and exhausted from the middle. Regulators permit pressure variance of from 50 lbs. to as high as 240 p.s.i.g.

The press closes to a predetermined thickness control in 15 seconds. Time cycles for pressing vary considerably, depending primarily upon board thickness and to a much lesser extent on moisture content of wafers and percentage of resin. Pressing time may vary from five minutes for ¼ in. boards to as much as 20 minutes for ⅝ in. boards.

When the pressing cycle is complete, the charge of 12 boards is ejected into a receiving elevator which automatically moves downward as the boards move one at a time into a caul separator.

A unique arrangement permits the bottom caul to return top side up to the start of the production line, while the top caul is flipped upside down for the same journey. This procedure insures that the same side of the caul always faces the mat and is not subject to scratches or other damage which might be reflected in the board face.

Boards go from the separator to a trimsaw receiving rack where they are held in place by suction. The rack itself moves beneath three saws which trim 1½ in. off each end and saw the board in the middle. Two traveling saws then trim the sides to 4 ft. for the entire 16 ft. length.

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The entire operation is, in effect, continuous despite the press cycle, for the felted mats and cauls enter as a continuous stream and are discharged as such. Aside from feeding the pieces of wood to the waferizer, attending to the supply or resin and wax, and taking finished boards from the trimsaw, the entire operation is automatic and easily controlled by an operator at a central control panel.

Because the wafers lie flat in the plane of the board, and only a small percentage of resin is required for perfect bonding, resulting boards have about the same density as natural wood. Independent laboratory tests show that Tenex has a maximum lateral stability, important where boards are used as ceiling, wall or floor covering. Qualities of stiffness, rigidity and bending strength are unusually high.

Also in tests, thick laminated boards were turned in lathes to make attractive items like table lamp bases and furniture legs. This was possible because of the wafer composition which in effect actually gives edges of thin veneer.

Among the first professional users was Walter Newport, Spokane, Wash., who operates the "Toymaker of Spokane" business. The job involved a number of woodworking operations. Mr. Newport reported, in part: "Tenex is a very stable material, and lays and works absolutely flat and level. It saws perfectly, using either a table saw, bandsaw, jigsaw, or saber saw. Also required on this particular job was the use of shaper, drill press and mortising machine, and the results of this work were quite satisfactory. It glues well and on various edge sanding operations it leaves nothing to be desired."

W. F. Stewart, sales manager of Pack River Tree Farm Products, Spokane, which is distributing the waferboard, reports that a number of architects, contractors, interior decorators and designers who have visited the plant and seen the product have been enthusiastic about its versatility and physical characteristics, and envision many uses for it.

First shipments of Tenex have gone to various branches of Kochton Plywood & Veneer Co., Inc., Chicago, one of the largest firms of its kind and one which has pioneered the distribution of several new materials in recent years.

Some Machines and Materials used in Pack River Lumber Co.'s Tenex Waferboard Operation:

Waferizer Knives	Ohio Knife Co.
Resin	Monsanto Chemical Co., Plastics Div.
Resin Feeder	Omega Machine Co.
Dryer	Proctor & Schwartz
Magnetic Pulleys	Dings Magnetic Separator Co.
Wafer-Resin Mixers	Union Iron Works
Temperature Control and Recording Equipment	Foxboro Co. and Minneapolis-Honeywell Regulator Co.
Trimsaws	Pacific Saw & Knife Co.
Pumps	Worthington Corp., Gardner-Denver Co., Wagner Steam Pump Co.
Filter	Cunee Engineering Corp.
Electrical Controls and Equipment	General Electric Co.
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CARBIDE KNIVES

(Continued from Page 36)

neers. An explanation of this particular problem should be of interest.

The unwritten law of jointing is to get an end result: *A true cutting circle and a uniform land on each knife.* When a jointer bar is set parallel to the head, even with steel knives, the stone is worn out before crossing the complete length of the knife and, consequently, the bar is set so that it angles toward the head as the stone wears. This procedure is not used in all shops and is generally a setup man's trick.

When carbide knives were put in the machine (the knives indicated at ± .001 runout) and jointed with a diamond stone, a wide land developed near the end of the bar and was directly proportional to the angle of the bar, thereby jointing the knives to the built-in margin of error necessary when jointing conventional knives.

Jointing with a diamond stone presents some additional problems. You cannot take for granted that the speed of a cutterhead to a fixed stone has the same relationship as a diamond grinding wheel to a fixed work piece. Actually, it is one proportional to the r.p.m. of the cutterhead, its circumference, and the square-inch surface area of the jointing stone.

For example, a 12 in. head has approximately 3 ft. of circumference per revolution working against a .25 to .50 sq. in. area of jointing stone. At 3,600 r.p.m. this is about 10,800 surface feet per minute. It is not uncommon to run a diamond wheel at 6,000 surface feet per minute, but in this case the relationship is reversed.

Therefore, on large diameter planer heads it is not practical to joint at operating speeds with a diamond stone because of the high surface feet per minute. However, jointing can be effective and successful at a reduced rate that will give the diamond stone an opportunity to clean and not load up. This is a situation common to all heads, but particularly true on the larger ones.

The most effective jointing method is to use a diamond wheel on a conventional grinder where a greater surface area of diamond is used for the jointing operation than can be obtained from a jointing stone.

If there are objections to the idea of jointing at speeds below the regular operating speed, the increased rigidity of the head containing tungsten carbide blades makes the probability of spring-out, or change of the operating plane, quite dissimilar from that which is experienced with steel blades in the same head. In the application on hardboard of the 50 in. blades the deflection of the head on the high density board was such that the machine vibrated excessively when conventional blades were used. However, as soon as the carbide blades were introduced, vibration was practically eliminated.

Tungsten carbide knives are not the only application that is of interest to the woodworking industry. Parts utilizing its high degree of wear resistance and corrosion resistance are being applied successfully in debarking nozzles, pump sleeves, bandsaw guides, and other similar jobs.

Editor's Note—*The foregoing article is based partly on a paper presented by the author at the recent spring meeting of A.S.M.E. in Portland, Ore., and on field data and photographs obtained by* WOOD & WOOD PRODUCTS *in cooperation with Mr. Reynolds.*

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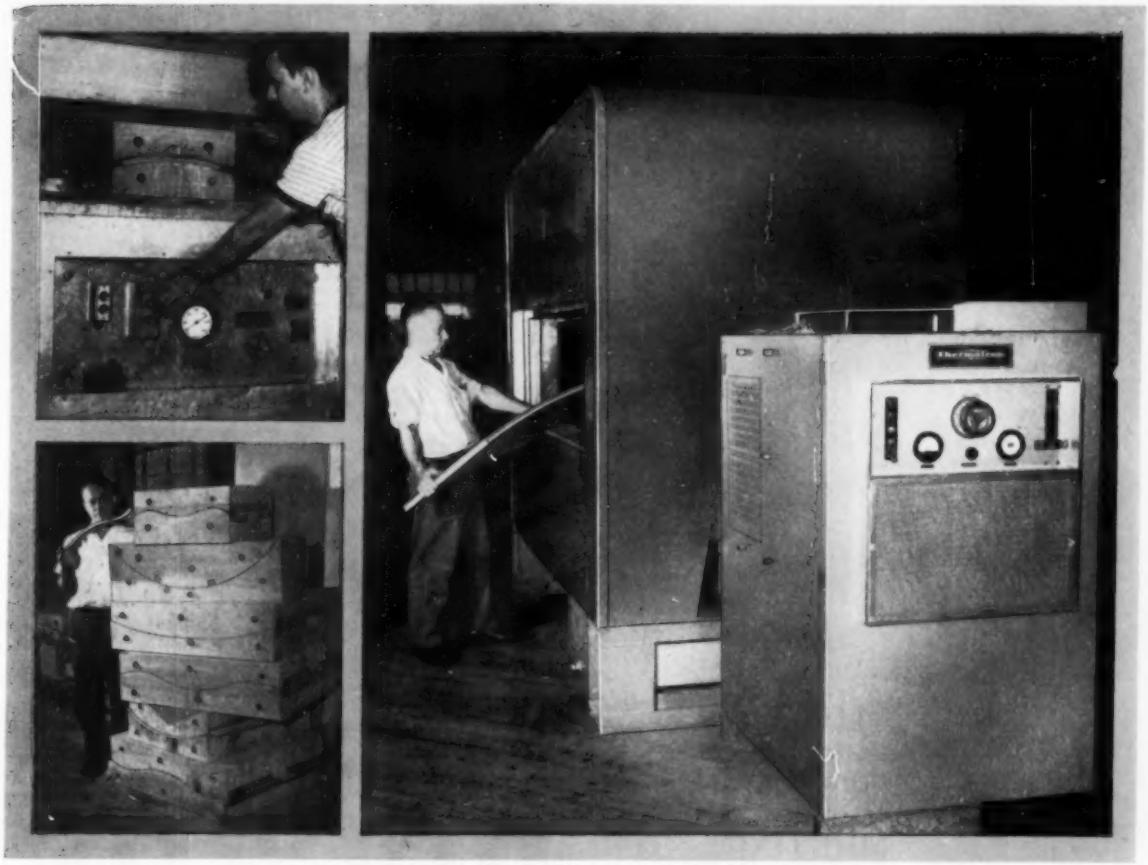
See Page 96



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Kiln and Ceiling Structure

Alonso G. Boyles. U. S. 2,736,278, Feb. 28. In a dry-laid ceiling structure for kilns, a bottom layer of abutting ceiling blocks, a layer of abutting cover blocks being offset in both lateral and longitudinal direction from the joints of adjacent ceiling blocks.

Band Saw Blade Trap

John H. Nelson (to Kropp Forge Co.) U. S. 2,736,348, Feb. 28. A safety mechanism for a bandsaw of an endless blade moving through a guard-like housing.

Sawing Contour Margins

Ross M. Francis. U. S. 2,736,349, Feb. 28. A machine for sawing contoured margins on sheet material embodying a bandsaw having a vertically extended blade.

Disappearing Stairway

Clayton B. Borden and James T. Borden, Jr. U. S. 2,736,482, Feb. 28. Disappearing stairway apparatus comprising a hinged ceiling door, upper stairway section and lower stairway section.

Kerf Cutting Machine

Joseph J. Slomer (to Goodman Mfg. Co.) U. S. 2,736,543, Feb. 28. Kerf cutting machine with hydraulically operated drill.

Cork-Bound, Hot-Pressed Boards

Clark C. Heritage (to Weyerhaeuser Timber Co.) U. S. 2,736,063, Feb. 28. A method of making a hot pressed hard rigid board by mixing wood particles and a separated cork fraction of the bark of a coniferous tree, the latter being an amount of at least 5% of the mixture.

Rubber-Coated Plywood

Clarence U. Gramelspacher. U. S. 2,737,0.2, March 6. A moisture-proof roadbed comprising a roadbed support having a base and lateral walls each consisting of plywood embedded in rubber.

Automatic Stacking

Paul E. Morgan, Arthur R. Abbott, John J. Maciejowski (to United Shoe Machinery Corp.), U. S. 2,737,390, March 6. A stacking machine for sheet material workpieces introduced at random having, in combination, a main frame, a delivery arm pivotally connected thereto, a conveyor system adapted to convey workpieces along said frame and discharge them from said delivery arm.

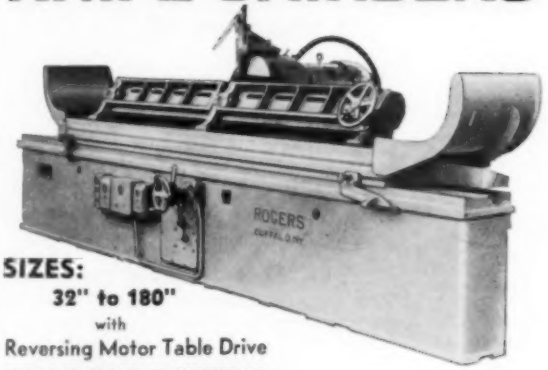
Chuck

Robert G. Miller (to G. M. Diehl Machine Works, Inc.) U. S. 2,737,657, March 13. In a machine, a chuck comprising a pair of mating body portions normally engageable with each other in a common plane, said body portions cooperating to provide a single bore opening through the opposite ends thereof.

Composite Pallet

Raymond E. Frase (to Signode Steel Strapping Co.) U. S. 2,738,153, March 13. In a pallet for handling and shipping merchandise having a load supporting platform comprising a plurality of parallel

ROGERS KNIFE GRINDERS



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relatively rigid strips extending in one direction on the platform and a second plurality of parallel relatively rigid strips overlying and secured to said first strips and extending in a second direction.

Furniture Housing

Otto Berker, Zurich, Switzerland. U. S. 2,738,248, March 13. In a cabinet for use in connection with a sewing machine having a free arm including a stitching plate on the top surface of said arm and a base below said arm, in combination, a frame structure defining on its interior a hollow chamber and including a horizontal apertured table.

Box End Lifting Means

Gerald C. Paxton (to General Nailing Machine Corp.) U. S. 2,738,506, March 20. In a machine for assembling and nailing a box which comprises rigid ends and a single, wrap-around sheet of relatively stiff material forming the sides and bottom of the box; said machine including vertically movable nailing units, anvils below the nailing units to support a pair of box ends in transversely spaced facing relation.

Hydraulic Slab Debarker

James T. Latimer (to Jackson Industries, Inc.) U. S. 2,738,814, March 20. In apparatus for debarking slabs and the like, a horizontal conveyor on which slabs are placed bark side up, a plurality of downwardly sloping driven hold-down chains disposed for the lower ends thereof to contact the upper surface of a slab as it moves along on the conveyor.

Turntable Cabinet

George W. Ullman. 2,739,023, March 20. A turntable cabinet for devices such as a radio, telephone or the like.

Storage Cabinet

Jerome Elman. U. S. 2,739,024, March 20. A storage cabinet construction comprising a fixed housing, having a front, a top panel, back panel and bottom panel in substantially rectangular relationship enclosing a storage space.

Drawer Guide

Edward P. Siggia. U. S. 2,739,028, March 20. A guide device for guiding drawers which have guide grooves in the sides thereof adapted to be affixed to a cabinet of the type which has a front panel containing at least one rectangular opening for the admission of a drawer.

Rip Fence

Charles H. Peters. U. S. 2,739,625, March 27. A rip fence for saw tables comprising a tubular bar rectangular in cross section and being formed with a slot extending lengthwise of the side wall of the bar confronting the saw blade.

Wood Shavings

Ludwig Vohringer, Unterhaeusen, Wurttemberg, Germany (to Blanch M. Voeheringer, Rochester, N. Y.) U. S. 2,739,627, March 27. A machine for production of wood shavings comprising a rotary tool carrier, a planing blade having a tip cutting edge mounted in said carrier with its tip cutting edge projecting for its full height beyond the periphery of said carrier.

Edge Slicing Veneers

Gerardus Johannes Maria Kok, London, England. U. S. 2,739,628, March 27. Apparatus for effecting the edgewise splicing of sheets of veneers, comprising means to advance the sheets in a direction normal to their edges to be spliced, and a heating element to heat the abutting edges of the sheets to be spliced.

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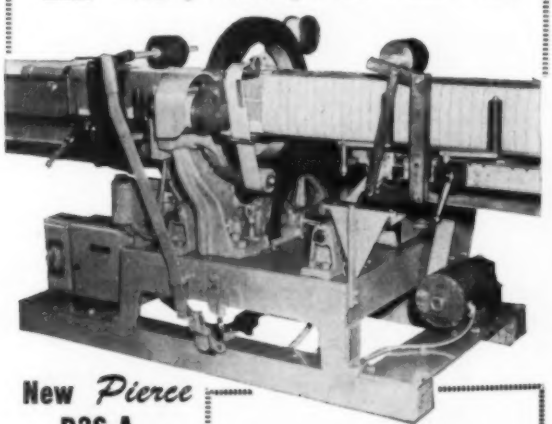

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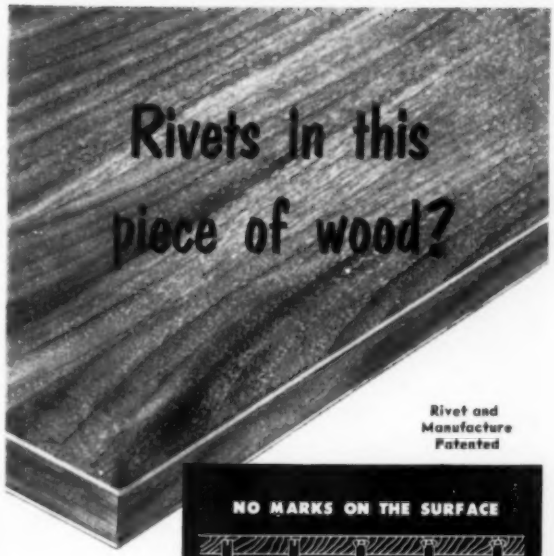

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WHEREVER TWO OR MORE PARTS ARE FASTENED TOGETHER; STANDARD AND SPECIAL DESIGNS FOR IMPROVED PERFORMANCE AND LOWER PRODUCTION COSTS

NAMES and EVENTS

Shown above are directors of the new Wood Office Furniture Institute at their first board meeting recently in Washington. They are, l. to r., seated: Douglas Whitlock, board chairman and general counsel; President Raphael Blessinger, secretary of Jasper Desk Co., Jasper, Ind.; and Treasurer Moselle Taylor Meals, president of Taylor Chair Co., Bedford, Ohio. Standing are: Vice-president C. L. Pettibone, president of B. L. Marble Chair Co., Bedford, Ohio; T. R. Pitts, vice-president of Myrtle Desk Co., High Point, N. C., and Sterling Lord, vice-president of Leopold Co., Burlington, Iowa. Absent are directors Ralph F. Schneider, general manager of Indiana Chair Co., and V. L. Gutzweiler, general manager of Hoosier Desk Co., both of Jasper, Ind.

INDUSTRY NEWS

W.O.F.I. Plans Program. After its recent board of directors meeting, the new Wood Office Furniture Institute announced plans for establishment of an industry-wide market analysis, technology studies, and uniform standards. Dr. Robinson Newcomb, economic consultant, was named to supervise the market analysis, and the association's vice-president, C. L. Pettibone, president of the B. L. Marble Chair Co., Bedford, Ohio, was appointed chairman of a committee on standards and technology. Director T. R. Pitts, vice-president of Myrtle Desk Co., High Point, N. C., is chairman of a committee on association merchandising and promotion.

This new association of wood office furniture manufacturers, incorporated recently, adopted the name of a previous industry group which has been dissolved. The former executive secretary, Robert A. Spelman, will continue as executive director. Officers and directors are given with the accompanying picture.

Particle Board Survey. Lumber manufacturers and others interested in development and marketing of wood particle board will be sent a questionnaire soon requesting advice on how to expand and improve operations. Burton F. Swain, Jr., president of National Veneer & Lumber Co., Seymour, Ind., heads a special committee of National Lumber Manufacturers Assn. which is considering plans for an industry organization to deal with marketing and standards problems of particle board producers. Everyone interested in this project is urged to contact Mr. Swain.

Northwest Hardwood Meeting. Members of the Northwest Hardwood Assn. held their quarterly meeting recently in Vancouver, B. C., in the library of the University of British Columbia. Along with discussion of grading rules on hardwood logs and lumber and hardwood shipping weights, members heard the following talks: "Manufacture and Uses of Hardwoods in British Columbia" by Dr. R. W. Wellwood, forestry professor at the University; "Management of Hardwood Timber Stands" by G. C. Warrack, British Columbia Provincial Forest Service; and "California Market for Northwest Hardwoods" by Louis S. Kunert, Tropical & Western Lumber Co., Los Angeles.

Lumber Firms Merge. Four sawmilling operations in the East Kootenay district of British Columbia have been merged into a single new firm, Crestbrook Timber Ltd., which will operate

- Routs pitch on 2 boards at one time—assures perfect matching
- Easily adjusted graduated template guides router to exact tread and rise . . . no marking-off necessary
- One semi-skilled operator can produce almost as much as three master carpenters
- Assembling and finishing are easier, faster

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SUPREME WOODWORKING MACHINERY CORP.
30-52 Howard Street • New York 13, N. Y.

Supply You Can Depend on

BRADLEY
FURNITURE
DIMENSION

Fully Machined
Ready for Assembly
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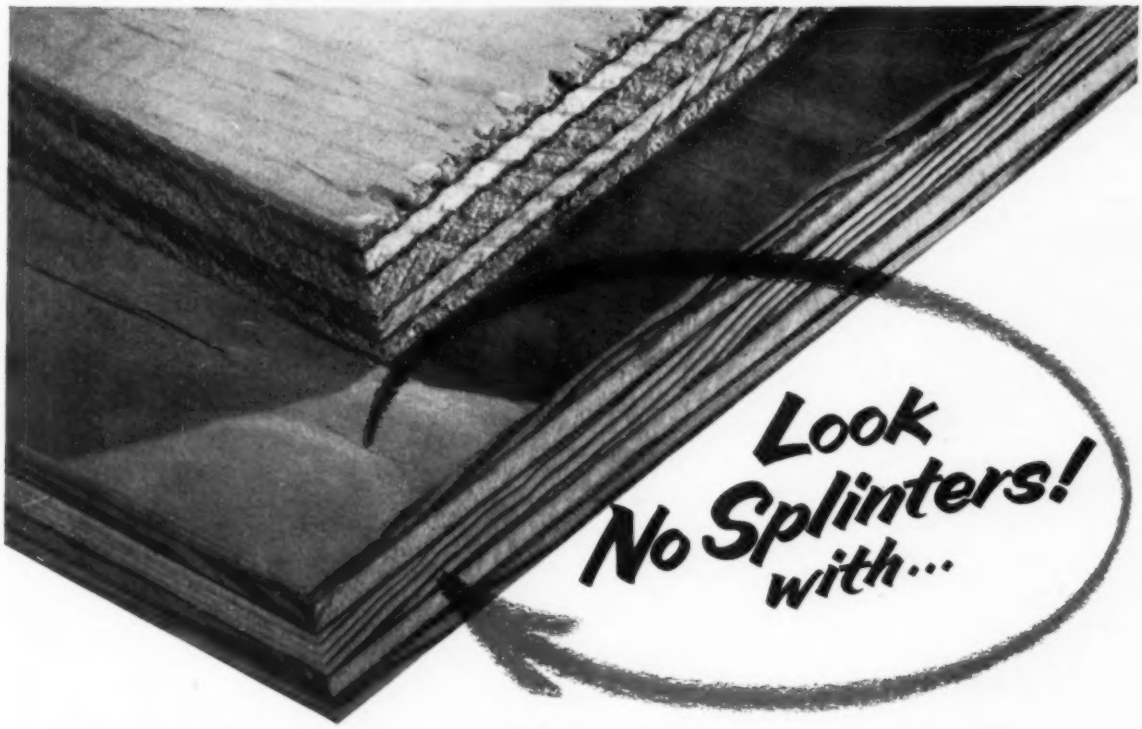
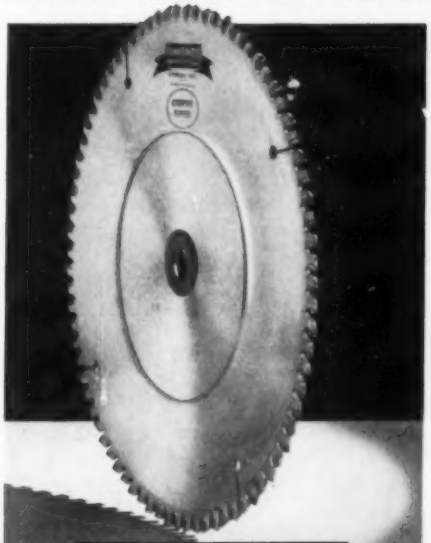
Also
Semi-Dimension
Cut-to-Size, Solid or Glued, Moulded and Tenoned to Pattern.
Tops in manufacture, plus ample capacity, know-how that assure exact adherence to your order.
Inquiry Invited

BRADLEY LUMBER COMPANY *of Arkansas*
WARREN, ARKANSAS



SIMONDS CARBIDE-TIPPED

Thin Rim Smooth Cutting Cut-Off Saws



Here's a Simonds saw that makes it easy to get super-smooth cuts on plywood, softwood or hardwood and flush doors. It completely eliminates expensive taping and sanding operations by producing smooth, sliver-free cuts.

These unusual results, of course, are due to Simonds famous Carbide-Tipped construction. But the extra smooth cutting is due to Simonds special design. Collars are "built in", and the whole saw is made with such infinite care that vibration is practically eliminated.

The result is amazingly smooth cuts, free from splinters. And exceptionally long service even in plywoods, where the glue line dulls many other saws in a matter of hours. Ask your Industrial Supply Distributor about Simonds *complete line* of Carbide-Tipped Saws . . . one for every purpose.

For Fast Service from Complete Stocks

Call your SIMONDS Industrial Supply DISTRIBUTOR

Factory Branches in Boston, Chicago, San Francisco and Portland, Oregon, Canadian Factory in Montreal, Que., Simonds Divisions: Simonds Steel Mill, Lockport, N. Y., Heller Tool Co., Newcomerstown, Ohio, Simonds Abrasive Co., Phila., Pa., and Arvida, Que., Canada

three main manufacturing plants and seven small sawmills. J. M. Brown, Jr., has been named president and managing director. He also is president of Pack River Lumber Co., Sandpoint, Idaho, and co-owner of Pack River Tree Farm Products, Spokane, Wash.

V. C. Brown of Cranbrook, B. C., secretary and general manager of Cranbrook Sash & Door Co., Ltd., will be vice-president of the new firm. Other directors are Paul E. Cooper, Vancouver; George W. O'Brien, Vancouver; A. O. Farstad, Creston, B. C.; Chester Chastek, Spokane; and Carl I. Hall, Vancouver.

Glued Laminated Southern Pine. Complete technical data on the specification and use of glued laminated Southern pine is presented in the eighth of a series of architects' bulletins published by the Southern Pine Assn., P.O. Box 1170, New Orleans 4, La. Well-illustrated, the bulletin gives design information, describes finishes, and shows effective uses.

Building Research Meeting. The Building Research Institute, technical society for the industry, will have its fifth annual meeting at the Sheraton-Brock Hotel, Niagara Falls, Ont., Canada on May 20, 21 and 22. The program includes a talk on particle board by Carl A. Rishell, vice-president, Timber Engineering Co., at the first technical session on May 21.

Mrs. Charles J. Williams, widow of the late board chairman of Moore Dry Kiln Co., is shown here accepting a bronze plaque commemorating Mr. Williams' 50 years with Moore. Presentation was made by President D. D. Bundrick during the company's 77th anniversary banquet and sales meeting held in Jacksonville, Fla., when it was announced that under its present officers and personnel, the company would follow the policies set by Mr. Williams

Woodwork Manufacturers Meet. At the 29th annual meeting of the National Woodwork Manufacturers Assn., recently, members elected James G. Boden president, succeeding L. L. Gibson, Long-Bell Lumber Co. Mr. Boden is general manager of Malta Mfg. Co., Malta, Ohio. Other officers are: Vice-President George M. Curtis, Curtis Companies Inc., Clinton, Iowa; Treasurer L. C. Paisley, Farley & Loetscher Mfg. Co., Dubuque, Iowa; and re-elected Secretary-Manager Ormie C. Lance.

Two new research projects were launched. One, to determine the best method of evaluating water repellents for treatment of wood, will be conducted at the Forest Products Laboratory, Madison, Wis. The other, to create new designs for wood combination doors, will be handled by Raymond Loewy Associates.

Hardwood Producers' Officers. Henry W. Jones, Cathey-Williford-Jones Co., Memphis, Tenn., was elected president of Southern Hardwood Producers, Inc., at the association's 21st annual meeting recently. He succeeds L. D. Kellogg, L. D. Kellogg Lumber Co., Alexandria, La., who was named chairman of the board of directors. Vice-president is Edwin H. Thomas, Thomas & Proetz Lumber Co., St. Louis, and L. J. Heatherly was re-elected secretary-manager.

Speakers at the large meeting included: Harry B. Uhl, president of Timber Engineering Co., Washington, D. C., who described his extended European trip last year surveying wood research; Fred A. Hartley, Jr., former Congressman from New Jersey, who discussed "The Taft-Hartley Law and the Right to Work Issue"; Chas. A. Rinehimer, president of Rinehimer Bros. Mfg. Co., Elgin, Ill., who detailed the accomplishments of Architectural Woodwork Institute, of which

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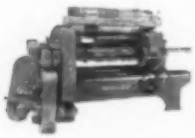
For All Your TURNINGS

—Sanding with the speed and economy you require for efficient production. Let us send you an illustrated bulletin covering the complete line of NASH Automatic Sanders.

Nash No. 50 Automatic Turning Sander



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★ CHAIR-BACK SANDERS

★ CHAIR SEAT BORING MACHINES

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SPECIAL-PURPOSE FURNITURE FASTENERS

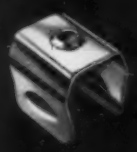
and self-fastening devices

These fasteners and other devices are designed either to speed in-plant assembly or to make possible K-D shipment of furniture for assembly by unskilled store personnel or the ultimate purchaser. United-Carr has pioneered in the field of fasteners specially designed for furniture production and, if you have a volume production problem that requires fasteners of a new or special design, United-Carr's engineering staff is at your service.

UPHOLSTERY CLIPS

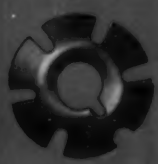
Applied by hand or with simple hand tool . . . suitable for range of application thicknesses and materials . . . sure, positive, gripping action . . . do not catch clothing . . . stay out of sight after assembly.

SEAT CLIPS



Attach padded, wood-framed seats to tubular metal frame . . . permit K-D shipment . . . provide quick, dependable fastening at home, store or warehouse. Sizes to fit range of tube diameters and basic frame designs.

HELIX WASHERS



Provide positive anchorage for bolt or threaded rod in metal tubing . . . push in easily . . . can be removed only with substantial withdrawal force . . . useful in tubing assemblies to attach handles or other tubular components . . . available to fit wide range of thread and tubing sizes.

CAPPED RATCHET PLATES

Decorative hub caps for furniture and wheel goods. Teeth bite into metal rod or axle so rod requires no nuts, threads or cotter pins. Available in range of sizes, light or heavy action, for push-on or hammered assembly . . . aluminum or nickel-plated caps.

PLASTIC BASE SWIVEL GLIDE

Non-corroding butyrate feet for tubular or wooden tables or chairs . . . accept legs at angle to floor . . . wide range of plastic colors and metal finishes available in combinations.

DRAWER GLIDES

Deaden noise, ease motion in sliding metal drawers . . . snap into place and stay put in hole stamped out of drawer wall . . . available in nylon or polyethylene material.

SUPER-SILENT SWIVEL GLIDE

Floats on rubber, slides on steel . . . base is completely insulated from chair or table by rubber cushion. Teeth hold glide in tubular metal legs. Swivel base allows glide to stand flat even though legs slope.

LONG PRONG TEENUT

Has curved prongs that provide twisting action for extra holding power as Teenut is driven into bored hole. Components can be repeatedly assembled and disassembled . . . provides steel threads in wood . . . permits K-D shipment.

SHORT PRONG TEENUT

Can be held in place by brads until final attachment of components by dealer or purchaser. Short prongs prevent turning when hanger bolt is tightened.

RECTANGULAR FLANGE TEENUT

Has narrow base for use in limited spaces. Held in place by brads instead of prongs. Specially designed for heavy duty applications.

UNITED-CARR Fastener Corp.

31 Ames St., Cambridge 42, Mass. • *In Canada:* Gage Ave. and Beach Rd., Hamilton, Ontario

MAKERS OF DOT *FASTENERS*

he is board chairman; and Leo V. Bodine, executive vice-president of National Lumber Manufacturers Assn., who discussed federal legislation affecting the lumber industry.

New directors elected to fill regular or unexpired terms were: W. H. Bailey, Bailey Lumber Co., Laurel, Miss.; W. H. Hallett, Jr., Hallett Mfg. Co., Mobile, Ala.; J. Newton Jones, J. M. Jones Lumber Co., Natchez, Miss.; H. S. Mersereau, Crossett Lumber Co., Crossett, Ark.; Frank Schuh, Georgia-Pacific Plywood Co., Augusta, Ga.; R. H. Smith, Southern Star Lumber Co., McKenzie, Tenn.; E. P. Vaughn, Vestal Lumber & Mfg. Co., Knoxville, Tenn.; Willard Ward, E. L. Bruce Co., Memphis, Tenn.; E. B. Price, Southern Pine Lumber Co., Diboll, Texas; P. M. Stimson, Stimson Lumber Co., Battleboro, N. C.; ex officio member: Mark Townsend, Townsend Lumber Co., Stuttgart, Ark.

Victor Products Moves. Recently announced by President Victor Ableson is the transfer of Victor Wood Products Co. and Victor Supply Co. to larger facilities at 1514 Wealthy St., S.E., Grand Rapids 6, Mich.

Report on Resource Review. The American Pulpwood Assn., 220 E. 42nd St., New York 17, N. Y., is offering copies of Dr. J. A. Zivnuska's analysis of the preliminary draft of the Timber Resource Review. The report, "Timber Today and Tomorrow," was submitted to the Forest Industries Council, and can be obtained from A. P. A. free as long as the present supply lasts. Also available upon request is a condensed report comprising what the Forest Industries Council feels are the most significant conclusions of Dr. Zivnuska's report.

Exporters Elect. Edward V. French, official of Atlantic Lumber Co., Boston, was named president of the National Lumber Exporters Assn. at its annual meeting recently in New Orleans. He has been acting president since December. Others elected are: 1st Vice-President Lee Robinson, Mobile River Saw Mill Co., Mt. Vernon, Ala.; 2nd Vice-President L. L. Shertzer, J. W. Wells Lumber Co., Montgomery, Ala.; Treasurer Joe Thompson, Thompson-Katz Lumber Co., Memphis; and association Secretary L. J. Heatherly.

During the business meeting the following directors were elected: R. W. Buchanan, Miller & Co., Selma, Ala.; L. D. Kellogg, L. D. Kellogg Lumber Co., Alexandria, La.; C. R. Ransom, W. A. Ransom Lumber Co., Harahan, La.; J. A. McGraw, Jr., McGraw-Curran Lumber Co., Yazoo City, Miss.; and E. V. Bulleit, Wood-Mosaic Co., Jackson, Tenn.

NOTES ABOUT SUPPLIERS

The Wheland Co., Chattanooga, Tenn., has announced that it has acquired an exclusive 26-state distributorship of Wurster & Dietz gang saws. Wheland will handle installation, service, and guarantee of the German saws.

Masonite Corp., Chicago, has launched a $14 million expansion program at its plants in Laurel, Miss., and Ukiah, Calif. At Laurel, a new manufacturing unit will increase the plant's capacity by more than 25 percent, chiefly for screen-back hardboard products, and additional facilities will increase production of newer products such as patterned exterior panels. At Ukiah, screen-back hardboard facilities will be enlarged approximately 50 percent.

Mater Machine Works, Corvallis, Ore., has added the Berry Hydraulic Carriage Feed to its line of sawmill machinery, according to an announcement by the Mater and Berry Division of Oliver Iron & Steel Corp., Pittsburgh.

Thor Power Tool Co., Aurora, Ill., will transfer its executive offices to the Prudential Building in Chicago next fall. The company's present facilities in Aurora will continue to accommodate, however, the administrative departments. Also moving into new and larger quarters at 1040 Speer Blvd., is Thor's Denver branch office, headed by Branch Manager C. H. Gabriel.

Further expansion will be achieved when a new plant is completed for Thor's division, Speedway Manufacturing Co., in LaGrange Park, Ill. It

MAKE 30 PROFITABLE PARQUET BLOCKS PER MINUTE from salvagable trim stock on this NEW SARANAC

Automatic Hopper-Feed PARQUET BLOCK MACHINE

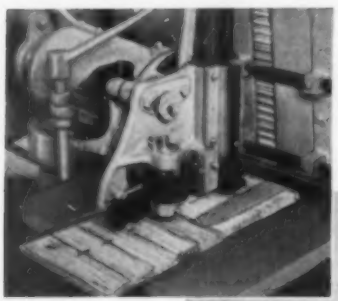


Fig. 3442

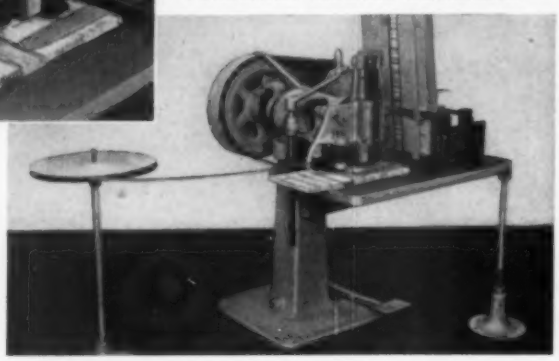


Fig. 3440

Here's the *profitable* answer to a former waste-product *problem!* Using salvagable trim stock, you can produce up to *thirty* 6¾" x 6¾" parquet blocks per minute—or 9" x 9" (four board) blocks at 22½ per minute with one operator.

Specialized for high production, this *new* Saranac Automatic Hopper-Feed Machine drives a sturdy corrugated fastener to link boards together—and automatically skips the space between blocks.

Floor layers *prefer* these blocks for easiest laying. There's no spline to cut off, and boards are quickly separated without need for a hacksaw. With corrugated fasteners, blocks also readily adjust to slight subfloor irregularities.

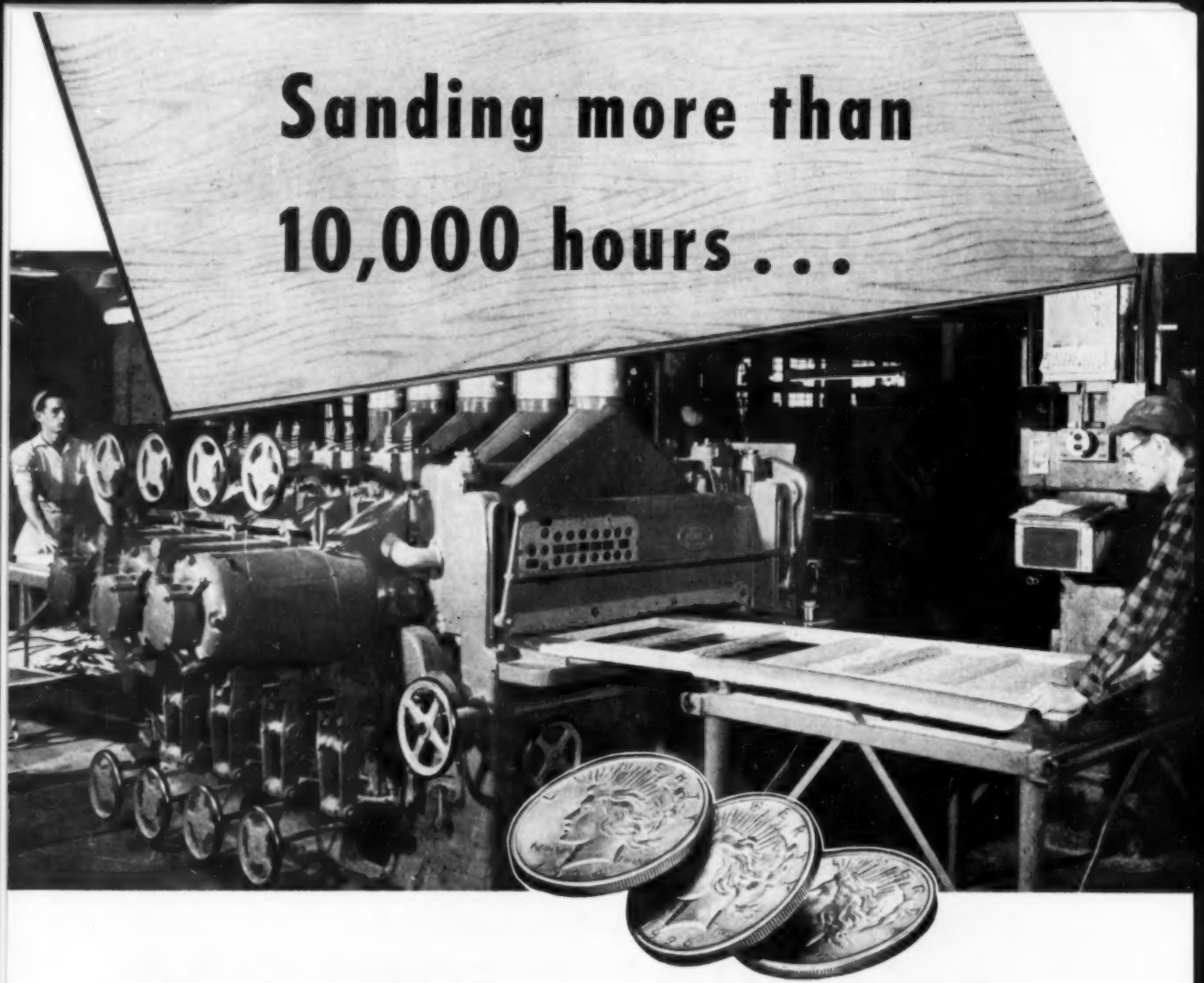
Machine is adjustable to produce blocks from 6¾" to 13½" square . . from 25/32" to ½" thick . . and can be connected to a conveyor or directly to the infeed of equalizer and tenoning machine. A squeezing device clamps boards together while fastener is driven.

Use your trim stock for profits! Write today for Parquet Machine data and prices!

SARANAC MACHINE COMPANY
BENTON HARBOR • MICHIGAN

Manufacturers of the World's Largest Line of Fastening Machinery

Sanding more than 10,000 hours . . .



Maintenance cost less than 20 of these!

That's the record of this Yates-American 8-Drum Sander in one West Coast plant

Ask any user — the cost of maintaining a Yates-American 8-Drum Roll-Feed Sander amounts to "peanuts". Nicolai Door Manufacturing Company in Portland, Oregon, for example, spent less than $20 for more than 10,000 hours' operation!

That's practically nothing to pay, considering the extra performance you get from a Yates-American. Take the model S-800 — it does heavy sanding jobs ordinary machines can't handle.

See for yourself. Have the Yates-American man show you a Yates-American 8-Drum Roll-Feed Sander at work. And mail the coupon for descriptive bulletins on Yates-American's complete line of sanders.

Tear out this coupon and mail today!

Yates-American

BELOIT, WISCONSIN

First with the *Finest* in woodworking machinery

Established 1883

BRANCH OFFICES: CHICAGO, ILL. • HIGH POINT, N. C. • MEMPHIS, TENN. • PORTLAND, ORE.

YATES-AMERICAN
Dept. E, 803 N. Fourth St., Beloit, Wisconsin

Send me information on the model S-800 and other machines in Yates-American's complete line of sanders.

Name_____

Company Name_____

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WW-8858

New particle board

BINDER RESIN

...offers 7 big advantages!

MELURAC® RESIN 304

1. *Lower cure temperature or faster cure cycles:* With MELURAC Resin 304 you can use up to 15°F – 25°F lower cure temperature or 10-15% shorter cure cycle at the same temperature.

2. *Less "blowing" and blistering . . . less sticking to cauls:* the result of faster or lower temperature cure.

3. *High strength:* MELURAC 304 gives you maximum flexural strength.

4. *High moisture and water resistance.*

5. *Lighter color:* MELURAC 304 imparts no color to the board. This new freedom from color can be a very important advantage for applications whose outer surface is the particle board itself.

6. *Easy handling:* MELURAC 304 is a melamine-urea-formaldehyde resin . . . a white, finely divided, free-flowing powder, dispersible in water if necessary.

7. *Economy:* With MELURAC 304 you can make *better* hardboard at a cost competitive with ordinary resins.

USES: Wall panels, table tops, furniture cores, veneer bases, and high-density board for flooring.

To make fuller and better use of wood, with less waste of this basic natural resource, use MELURAC 304. Write today for complete information, samples or the assistance of a Cyanamid Technical Service Representative.

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will be a one-story building, with provisions for expansion, which will consume most of its 15-acre site. Speedway's executive vice-president, J. R. DeBacher, will supervise the project.

Clark Equipment Co., Battle Creek, Mich., will introduce its new Clarklift line of fork-lift trucks at the Materials Handling Institute Exposition in Cleveland, June 5. Aside from the attractive but functional design, the trucks also feature a 12-volt electrical system, automatic transmission, emergency fuel tanks, self-adjusting brakes, combination lift-tilt controls, solid and pneumatic tires.

PERSONNEL CHANGES

J. C. McGreivey

F. D. Stevens

John C. McGreivey has been appointed industrial sales manager, New York division, by Behr-Manning, division of Norton Co., Troy, N. Y. He succeeds A. F. Lehnhardt. Also announced were the appointments of **William J. Sweeney** and **Frederick D. Stevens** to fill West Coast sales supervisory positions. Mr. Sweeney will serve as regional sales manager of the Pacific region, and Mr. Stevens becomes industrial sales manager of the Los Angeles division, formerly Mr. Sweeney's position.

Wm. J. Sweeney

Charles M. Kreider has joined Brooks-Scanlon, Inc., Bend, Ore., as assistant general manager, succeeding Freeman Schultz who is now general manager. Mr. Kreider was formerly with Elmendorf Research, Inc., Chicago engineering and research firm, and has had wide experience in the construction and wood products industries.

C. M. Kreider

George Peters

George Peters has been named director of promotions for the Spee-Flo Co., Houston, Texas, where he will coordinate and direct publicity and advertising.

Vincent Marino, Ross C. Stevens, and **Robert K. Stevens** have been selected as district sales managers by DeWalt, Inc., Lancaster, Pa. Mr. Marino will cover the New England territory of Maine, New Hampshire, Rhode Island, and eastern Massachusetts. Mr. Ross Stevens will represent DeWalt in New York City, and Mr. Robert Stevens will cover Connecticut and part of New York.

M. L. Backstrom has been appointed district sales manager of Firth Sterling Inc.'s Chicago district, and **C. C. Krogh** succeeds him as assistant manager of the carbide sales division. Mr. Krogh is also manager of the distributor sales division.

Robert T. Eversole, southern representative for Stetson-Ross Machine Co., is shown above, left, with George M. Dickson who is Stetson-Ross' Western Canada sales representative

Robert T. Eversole has been appointed factory representative for Stetson-Ross Machine Co., Inc., Seattle. He will handle sales of planing mill

RESULTS

MADE THE SECOND SALE!

"We are proud of the fine lumber we make . . . The proof of the pudding is in the eating."
—J. P. Hamer

ALL ELECTRIC—AIR OPERATED!

Designed and Equipped by Wheland Throughout!

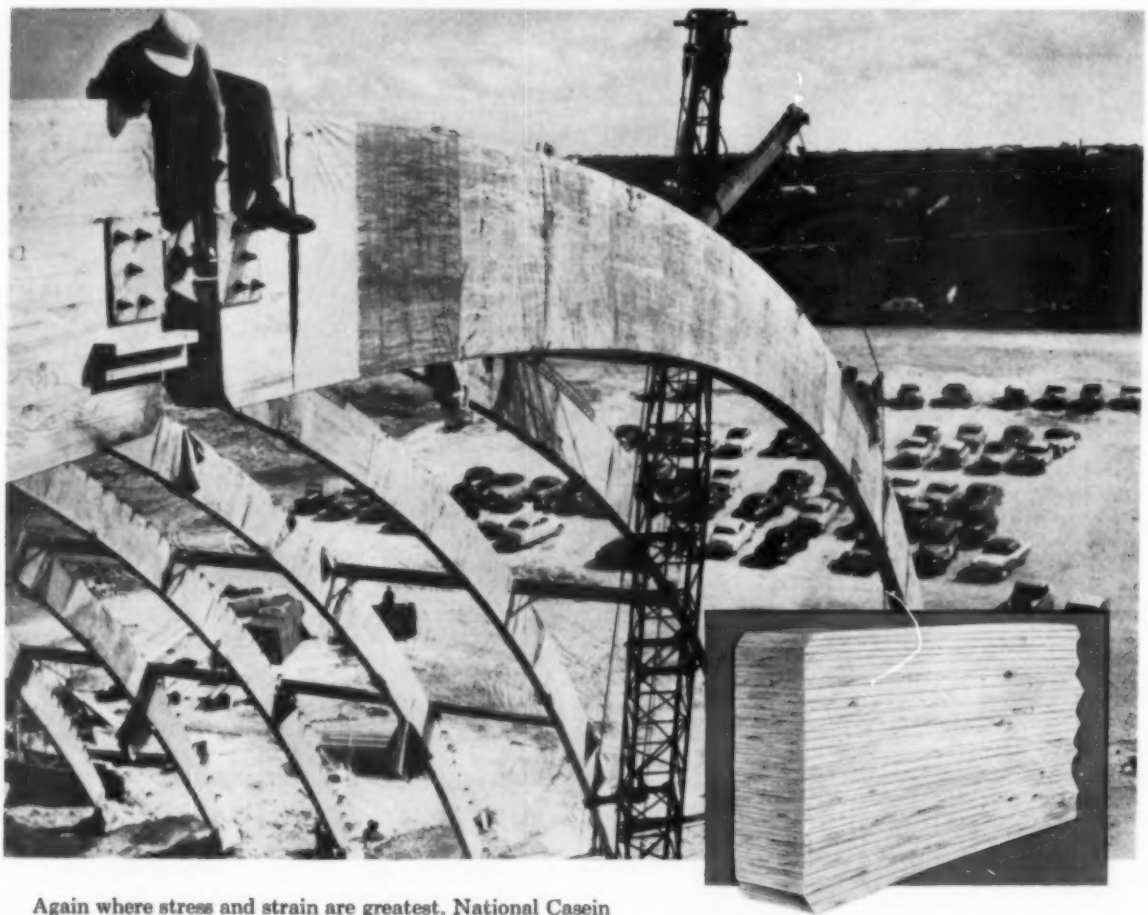
J. P. Hamer Lumber Co., Kenova, West Virginia, were so pleased with the clean, straight line production of their first Wheland Sawmill they bought a second one. Shown above is the new installation at their Appalachia, West Virginia, operation. Note Wheland Log Haul-up and Air-Operated Log Unloader on right which delivers logs to Live Log Deck.

All of the Wheland Equipment in their Appalachia Mill is Electrically Driven and Air Operated—no belts or pulleys.

DETAILED BULLETINS ON REQUEST
Write or phone:

THE WHELAND COMPANY
CHATTANOOGA, TENNESSEE — PHONE 5-3181
MANUFACTURERS OF COMPLETE SAWMILLS AND AUXILIARY MACHINERY

'Unit Structures'* fabricates world's largest wood arches with National Casein glues!



Again where stress and strain are greatest, National Casein adhesives are selected as the *right glues for the job.* This time, for the laminated wood arches used in the new Jai Alai Fronton at West Palm Beach—a building that breaks structural records and establishes construction precedents.

Jai Alai requires a large indoor playing area unencumbered by posts. Such an area, with a seating capacity of 3,500 was provided by use of the largest glued laminated wood arches ever manufactured.

Bonds of National Casein glue for the laminated elements of these arches test stronger than the wood.

You, too, may have a tough adhesive problem. We sincerely believe that we can help you. Write the National Casein office nearest you. No obligation.

Arches are unusual because of variance from the usually constant cross section. At the crown, the cross section measures 20 inches, at the base 25 inches, and at the point of maximum stress, 46 inches. Hinged to buttresses, the arches soar to a height of 80 feet at the crown — equivalent to eight stories in a building. Each arch has a clear span of 247 feet, a lineal arc measurement of 340 feet. The clear span is nearly 50 feet greater than that of any wood arches previously manufactured. Standard sizes of two inch thick Southern Pine lumber are glued and shaped in specially engineered presses.

National Casein

601 W. 80th St., Chicago 20, Broad & Fulton Sts., Riverton, N. J.

*Arches were shipped by train from the Magnolia, Arkansas plant of Unit Structures, Inc.

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equipment in the South with headquarters in Jackson, Miss.

A. C. Hawthorne

F. T. Gearhart

J. A. Webster, Jr.

C. S. Zollinger

A. Cary Hawthorne, Jr., has joined the Delta Power Tool Division of Rockwell Manufacturng Co., Pittsburgh, as Maryland district sales manager and **Frank T. Gearhart** has been appointed Philadelphia-South New Jersey district sales manager by Thomas C. Mortimer, Eastern regional sales manager. In the East Central region, Manager Robert Humphrey has announced the appointments of **James A. Webster, Jr.**, as western New York district sales manager, and **Charles S. Zollinger** as Pittsburgh district sales manager.

Peter Heiser has been appointed west coast sales representative for DeLuxe Saw & Tool Co., High Point, N. C. He will also represent the American Saw & Tool Co., Louisville, Ky.

Herman E. Happel has been appointed director of research and development by Atkins Saw Div., Borg-Warner Corp., Indianapolis. He will be in charge of engineering research, product design and development.

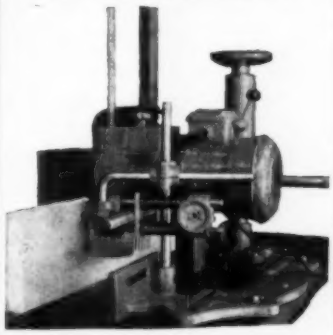
James M. Veeder has been named vice-president and manager of the Finance Department of Koppers Co., Inc., Pittsburgh. He succeeds Vice-President **E. A. Berry** who is now assistant to President Fred C. Foy. **Charles G. Strang**, who has been an assistant vice-president in the Finance Department, was promoted to vice-president and assistant manager, replacing Mr. Veeder.

DEATHS

Alfred A. Halgen, executive vice-president and director of National Starch Products Inc., died at 61 recently after a 10-week illness. A chemical engineer, he joined National Starch in 1919 and shortly thereafter was made manager of its Plainfield, N. J., plant. He was elected a director in 1932, secretary in 1938, and vice-president in charge of manufacturing in 1942.

TOOL UP WITH WOODWORKERS'

POWER FEED ATTACHMENT



For Resawing on Band Scroll Saws. Also used as Facing Attachment on Jointers, Saw Tables and Shapers.

Price $575.00 F.O.B. Chicago

Motor-driven with ½-h.p. motor, 60-cycle, 3-phase, variable feed 10 to 90-feet per minute. Attachment fitted to your band saw will handle resawing of any stock which band saw itself will handle. By tilting table, bevel siding can be resawed.

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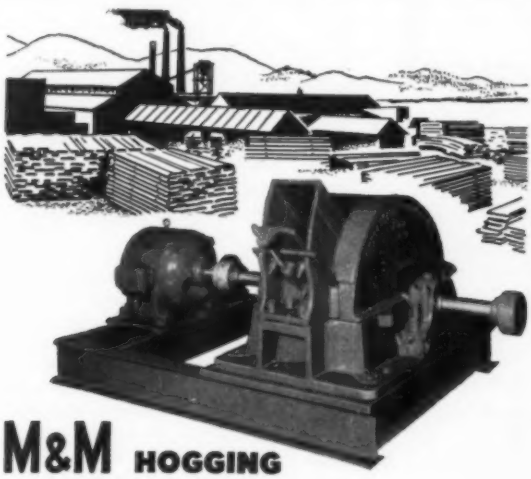

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M & M Wood Hogs reduce scrap lumber to small uniform wood chips suitable for fuel, and many other purposes. Built in sizes and types to handle slabs, trim, edgings, blocks, veneer, bark and other combustible waste. Write for catalog giving complete information.

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MIDWEST WALNUT CO.

COUNCIL BLUFFS, IOWA
WARTRACE, TENN. WILLOW SPRINGS, MO.

TELEVISION CABINETS

(Continued from Page 40)

workmen perform what is called an "antique" operation. Actually the slotted areas or vein lines are touched up with colored filler which will blend with the color of the cabinet.

The cabinet is now thoroughly sanded—sides, top and the front frame. It is wiped clean and passed by conveyor into the stain booth where minor color imperfections are colored to blend—such imperfections as any exposures of raw wood are given their proper color. The cabinet is then conveyed into a booth for the second sealer coat which is needed to give the finish a good base for the final lacquer coat. The cabinet would look porous without it.

After drying in an oven, the cabinet's top, two sides and front frame members are sanded again. The cabinet now passes an inspection where imperfections are marked up for cabinet patchers.

After any imperfections have been patched up and proper color obtained, the cabinet is wiped free of lint and dust and passed into a booth where the final lacquer coat is sprayed on. The cabinet is then conveyorized through "flash" drying into a drying oven. This is followed by another inspection for lacquer runs.

Cabinets are conveyorized to the fitting department where necessary hardware and baffle plates are attached. Final inspection follows.

After acceptance the cabinet is conveyorized into the packing department where fillers and a carton are placed over the cabinet. The carton is sealed by means of a stapling machine. The packaged cabinet is then placed on a floor to floor conveyor which moves it from the fifth floor to the shipping dock on the first floor.

Some Machinery, Equipment and Supplies used by Zangerle & Peterson Co.

Cutoff Saws	C. O. Porter, Machinery Co.
Ripsaws	Mattison Machine Works, Baxter D. Whitney & Son., Inc.
Automatic Shapers	Baxter D. Whitney & Son, Inc.
Tenoner	C. K. L. Machinery Co.
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Drum Sander	H. B. Smith Machine Co.
Spindle Sander	Pearson Sanding Machine Co.
Moulding Sander	Mattison Machine Works
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Edge Sander	Ekstrom, Carlson & Co.
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Hardboard	Masonite Corp.

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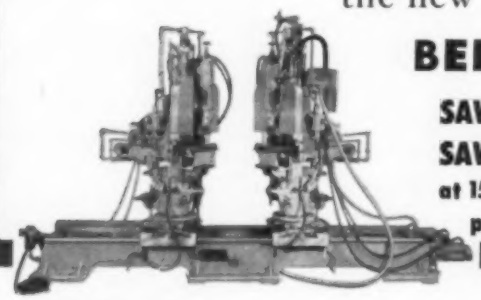
the new • improved

BELL 24

SAWS & BORES

SAWS & CHUCKS

at 1500 pieces per hour



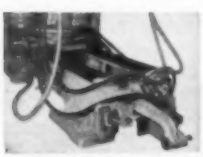
Increased accuracy and speed of set-ups can be accomplished with center drive column adjusting motor. Final and precise setting can be made by hand adjustment.

You can replace *two . . . sometimes three units*, with the New and Improved Bell 24 . . . because it saws and bores, or saws and chucks . . . both ends at once . . . *at* 1500 pieces per hour when fed two pieces at a time.

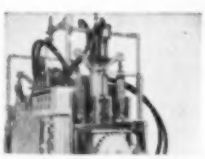
Push-button controls. Angles up, down, or mitering are easily determined; average set-up time less than 10 minutes.

If you manufacture chairs, radios or TV cabinets, frames, tables, bedroom or other furniture . . . it will pay you to inquire about the New and Improved Bell 24. Immediate delivery, write

Right or left hand column mitering can be set to precise angles by Venier scale. Column tilt is set by degree scale.



Floor space requirements are reduced and increased work space provided by horizontal mounting of foot control.



More precision work is obtained and wear is reduced on saw blades and drills with hydro-check cylinders mounted on boring and saw heads. (Extra equipment)

Bell

WOODWORKING MACHINERY

THE BELL MACHINE COMPANY

78 Jackson Dr., Oshkosh, Wisconsin

BARKER DATA

(Continued from Page 44)

to 33-in. logs, requires frequent cleaning with cedar barking (eliminated in larger and later models), and requires a run-around for 5% of the logs. Reversible rolls would reduce capacity below mill requirements. The barker cost $172,000 installed, including all trial installations, but excluding steam costs (15,000 lb. per hour).

The advantages of the 60-in. model, installed in 1953, are: low maintenance costs (average $1000 per month), clean barking, low loss of fiber, production of 25,000 bd. ft. per hour with one-third of logs making three passes, rough tops and fluted butts being no problem. Disadvantages are: 0.5% of the logs must be by-passed due to size, capacity slightly below that of the other two barkers considered, higher water and power usage, higher installation cost than mechanical or wig-wag hydraulic barkers ($400,000 to be paid off in three years). Chip recovery now averages 0.74 units per thousand bd. ft., and sometimes reaches 0.78. Steam consumption is 20,000 lb. per hour.

F. S. Foyston, Alaska Pine & Cellulose, Ltd., Port Alice, B. C.

Alaska Pine & Cellulose, Ltd., installed a slab barker at its Alaska Pine mill in 1946 from which 0.4 units of chips per thousand bd. ft. was obtained. Because of the labor costs involved with the slab barker a log barker was considered. Due to cramped space, existing types of

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barkers were eliminated in favor of experimenting with an oscillating type. This is a 20-ft. mill cutting 800 logs and 140,000 bd. ft. per shift, on a two-shift operation. The barker cost $163,000 installed, but some of the pumps, screens and chippers were from the slab barker. The machine increased chip recovery by 0.26 units per thousand bd. ft. over the slab barker yield, worth $273,000 per year, eliminated one man, and reduced water usage from 875 g.p.m. to 580 g.p.m. Barking and chipping now costs $1.00 per thousand bd. ft., but with the installation of a steam turbine will be reduced to about 60 cents. Maintenance cost is very low.

Mr. H. Hagerman of Bridge Lumber Co., Ltd., Vancouver, B. C.

The operation of the Bellingham barker at this custom mill is noteworthy because lumber recovery receives first consideration and chip recovery is secondary. The installation must permit by-passing of the barker for yellow (Alaska) cedar, whose chips are not wanted by any pulp mill, and in case of a barker breakdown. The mill is best suited to 24-ft. logs so that the barker should be also. It must do a good job on red cedar which forms 60 to 75% of the cut, and must use unfiltered river water. It should clean out flutes and rot on split logs. The capacity of the barker should be greater than that of the mill; there is no advantage in barking ahead.

Chip recovery varies from 0.3 to 0.7 units per thousand bd. ft. The barker at 1400 p.s.i. uses 400 g.p.m. of water. It has simple components and no complicated seals, and has been entirely satisfactory.

L. MacDonald, Eburne Saw Mills Division, Canadian Forest Products, Ltd., Vancouver, B. C.

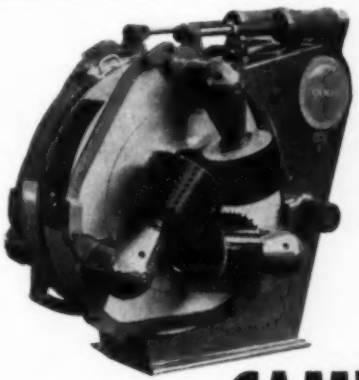
In 1946 this mill chipped bark-free slabs, then installed a slab barker. The latter requires too much manpower for its capacity so that a log barker was considered in 1950. The problem involved cramped space in an old mill, with no room for expansion, taking logs up to 60 ft. in length.

A 60-in. ring Hansel barker was installed for Mills 1 and 2 and a 36-in. ring for Mill 3. A single jack ladder was installed for Mills 1 and 2, and a 108-in. swing cut-off saw to reduce logs to a maximum length of 42 ft. It was thereby possible to discontinue use of the two pond saws and to eliminate one of the two boom crews. The barker can be moved aside without shut down for large logs, but usual practice is to hold these logs, quarter them, and put them through the barker.

The most serious problem has been with the ring seals, although the 36-in. barker is less critical than the 60-in. River water is now settled for 1½ hours in the base of a disused waste burner, following which the sediment is fine enough to give up to 2000 hours without shutdown. A new molded plastic seal will not pick up silt as readily.

The larger barker operates at 1600 p.s.i., using two 600 g.p.m. pumps and one 300 h.p. booster pump with 1200 g.p.m. capacity, serving the two mills with a combined average cut of 40,000 bd. ft. per hour and a peak of 50,000 bd. ft. per hour. The smaller barker operates two shifts per day, whereas the mill operates three shifts and cuts 150,000 bd. ft. per day. It has sufficient capacity to return logs to the water for the third shift, or for whole log chipping. The barker operates at 1400 p.s.i. and is served by one 600 g.p.m. pump. Chip recovery is 0.9 units per thousand bd. ft. log scale.

In the discussion that followed the panel agreed that barking reduced saw costs, and increased overrun by an undetermined but small amount. Grade recovery was improved and pollution is not yet a problem. Mill output is improved, and the mill is cleaner. Each mill has its own problem to consider in selecting a satisfactory log barker.



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Completely automatic in operation, the revolutionary CAMBIO is the only barker to bark soft or hardwood logs down to 3 feet in length at speeds up to 150 feet per minute.

The unit is self-contained and easily installed wherever electric power is available. Built to American standards, the new CAMBIO BARKER is engineered for fast, efficient barking, plus unusually low installation cost. Available in capacities from 2" to 42" log diameter.

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SODERHAMN, SWEDEN SINCE 1864 TALLADEGA, ALABAMA

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JOB EVALUATION

Continued from Page 46

for the various gradations of each factor. Each level must be strictly defined, so that consistent interpretation of the elements included in each factor may be made.

The levels or grades in each factor should be expressed or defined in written form, and it is also desirable to have such definitions accompanied by examples of standard or well-defined jobs that have taken into consideration the following: (1) the minimum abilities an employee brings to the job; (2) the extent to which he is called upon to use them; (3) the responsibilities which the employer demands on the job; and (4) the conditions under which the job must be performed.

When the individual jobs have been evaluated, the sum of the job factors should be well under the maximum total points of the system.

(4) **Factor Comparison System.** There are several differences between this method and the point system. One is that the graded factors are assumed to be fundamental to all jobs. Another is that jobs are evaluated relatively, using certain existing jobs as points or degrees on the evaluating scale, rather than descriptive definitions.

This system has the advantage of simplicity. It establishes a fixed relationship between job value and actual compensation, since it is based on key jobs for which compensation is standard or, at any rate, not subject to controversy. Once the key jobs have been selected, they are ranked from highest to lowest in order of importance. After the ranking, however, the key jobs are evaluated by study and examination of individual job descriptions. All other jobs are then related to the key jobs, and the final result is an agreed upon, company-wide grading system.

The important thing for management to remember in any job evaluation plan is that it must not become mechanical.

Actually, job evaluation offers management a solution to valid job rating, sound wage structure, effective use of manpower, and control over labor costs.

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HEADS...
Here you see a few Ekstrom, Carlson cutterheads — typical of the different types and sizes available. ECCo heads are accurately made and carefully finished, to give consistent performance on the job. For uniform and reliable results, be sure to order EKSTROM, CARLSON cutterheads.
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CLOSE TOLERANCES

(Continued from Page 25)

wooden parts for rifles too. And we did, for the duration of the war."

"With the starting of the Korean problem," he continues, "we decided we would like to make two small hand parts of the M 1 rifle." These two parts were the most difficult to machine, it might be added, so there was no question about it being an interesting challenge to Richardson Bros.

Walnut, from which all the hand parts are made, is first put through the rough mill. This is followed by the base milling operation where it is gang-ripped and a blank cut out to leave a groove on the inside.

From here the stock is moved to the machine room where each piece passes through a taper reamer and milling cutter. Up to this point operations for both front and back pieces are similar. There follows a series of operations which produce the cuts to close tolerances required in the finished guards, as shown in the accompanying photos.

Finally the machined pieces are ready for finishing in an oil bath. Pieces are stained to blend light and dark sections, then each is hung on a chain conveyor which carries it into the oil tank, lifts it, and after sufficient time for drying, delivers it back to the starting place. Here an operator removes finished parts and loads the chain again with unfinished pieces.

The final process involves attaching metal parts by means of air-operated tools.

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R. P. A. JOHNSON

Robert Pilson Albert Johnson, better and most affectionately known as "R. P. A.," as chief of the Forest Products Laboratory's Division of Physics and Engineering, is in charge of the laboratory's research on both the seasoning and strength properties of wood. He was born in Alexandria, Va., a fact borne out by a Virginia accent that remains to this day. He graduated from Virginia Polytechnic Institute with a bachelor's degree in engineering and subsequently received his master's degree from the University of Wisconsin. He was first employed as a forest guard by the U. S. Forest Service in Montana and New Mexico and has retained an appreciation of the problems of timber management.

Mr. Johnson joined the staff of the Forest Products Laboratory of the Forest Service, U. S. Department of Agriculture, by transfer from his assignment in New Mexico. He has remained on the staff ever since with the exception of two years of service in the lumber division of the War Production Board during World War II.

Mr. Johnson's long career in the service of wood engineering can be summed up with the statement that he is recognized as the nation's foremost authority on the engineering of timber structures. His services in the determination of the strength properties of wood and the application of this information to the establishment of grades for structural timbers have been outstanding. His ability to coordinate scientific considerations with the conditions of commercial distribution have won him the respect and affection of the principal timber manufacturers and fabricators in the United States.

Despite his technical and administrative responsibilities, R. P. A. Johnson has authored many articles and publications. Among the publications are three U.S.D.A. publications dealing with white fir, western hemlock, and western larch, their properties and uses. Jointly with the late C. V. Sweet, he wrote U.S.D.A. Farmers' Bulletin 1756, "Selection of Lumber for Farm and Home Use." With E. M. Davis, he co-authored U.S.D.A. Miscellaneous Publication 358, "Use and Abuse of Wood," the substance of which he and his staff have presented to builders throughout the nation in a popular and effective lecture. Much of the new "Wood Handbook of the Forest Products Laboratory" reflects his contributions and technical supervision.

Mr. Johnson is a member, advisor, or consultant to the following industrial and professional committees: American Institute of Timber Construction, Standards Committee; American Railway Engineering Association, Committee 7 on Wood Bridges and Trestles; American Society of Civil Engineers, Committee on Timber Structures; American Society for Testing Materials, Committee D-7; American Standards Association, Construction Standards Board and Committee 0-5 on Specifications for Wood Poles.

In 1953 R. P. A. Johnson was cited for superior public services by Secretary of Agriculture Ezra Taft Benson in the following terms: "For dynamic leadership in the proper and effective utilization of wood. For constructive objectivity and soundness of technical contributions which bring credit to the Forest Service and command the respect of industry."

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